



Building the Ultimate Game PC pt. 2
Assembling the Beast

WIN
The
\$4,000
Ultimate Game PC

HUB

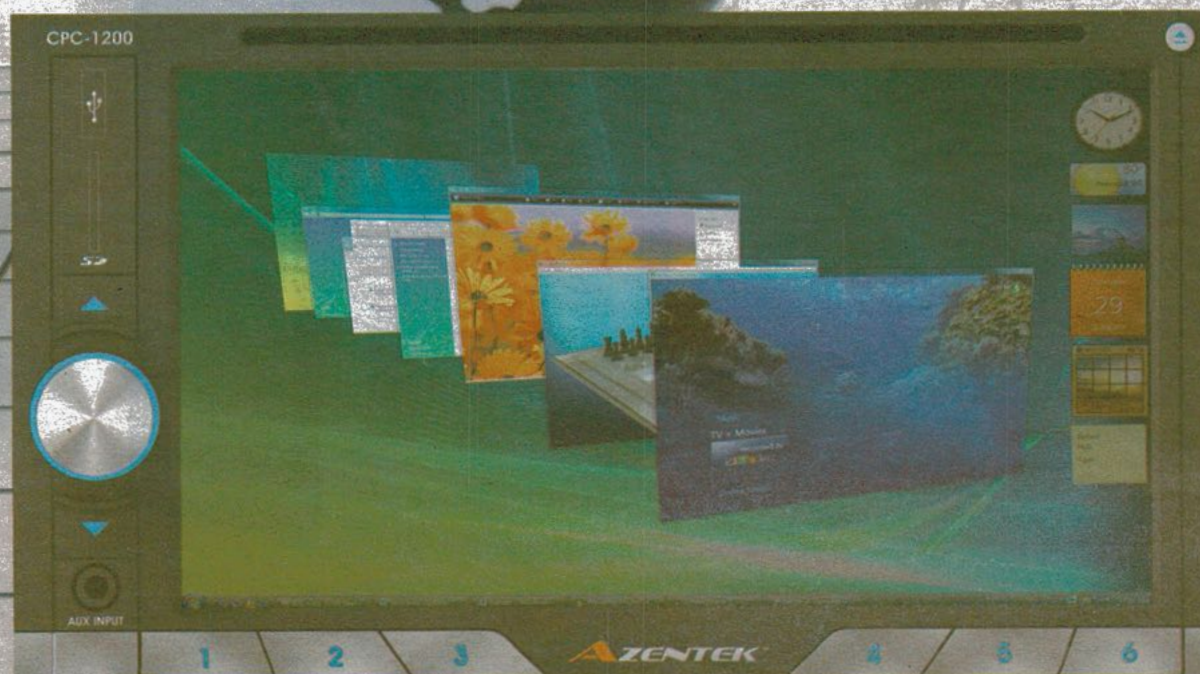
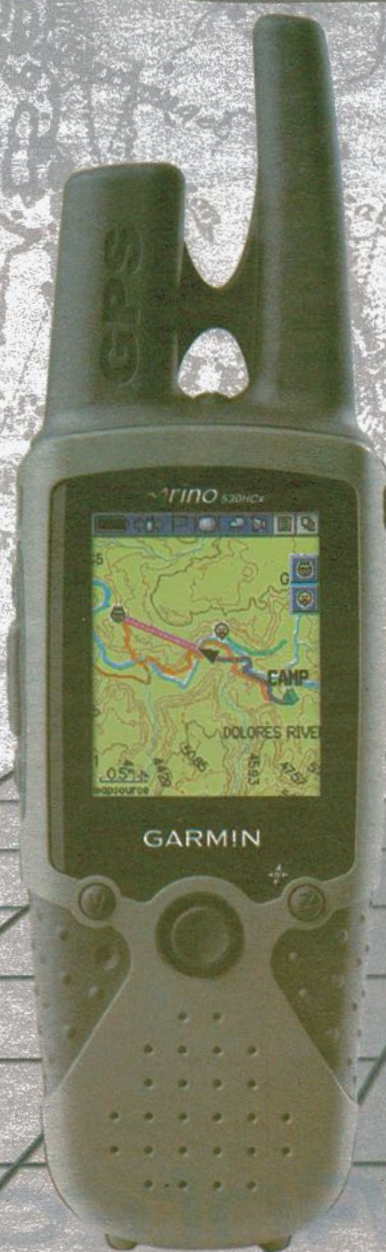
**The
Computer
Paper**

June 2008

Volume 21 Number 06

Free

Ridin' Nerdy

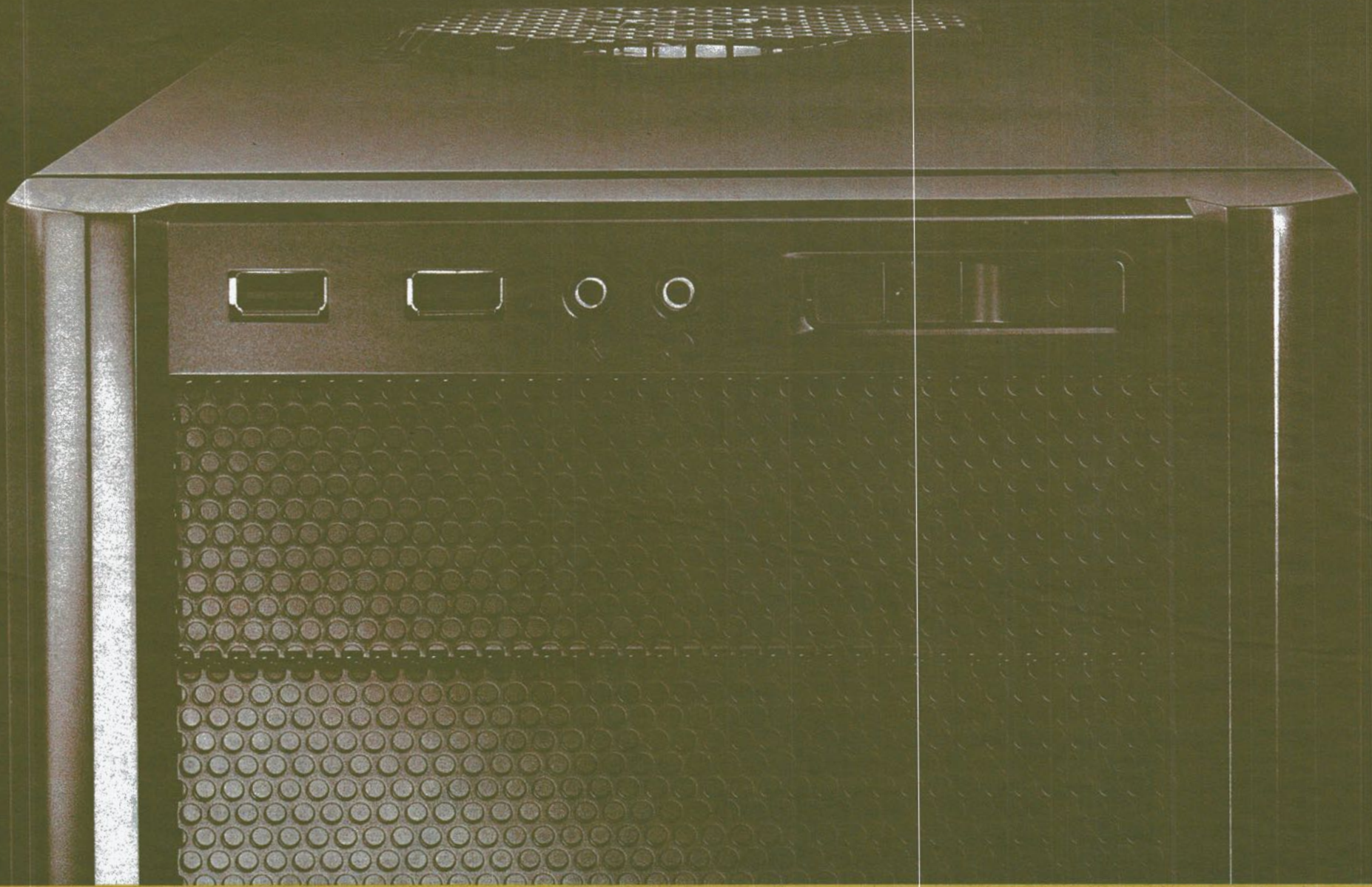


A PC in your
Dashboard

Photo Spree
New Challenge
Announced

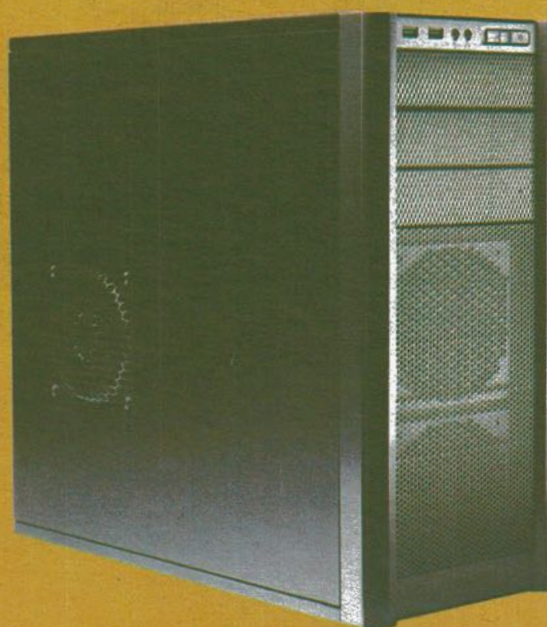
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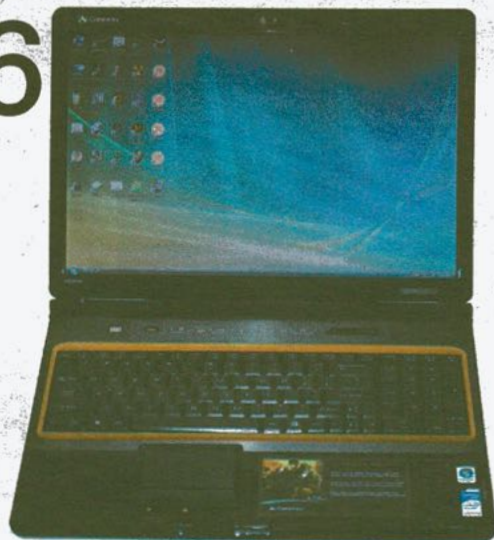
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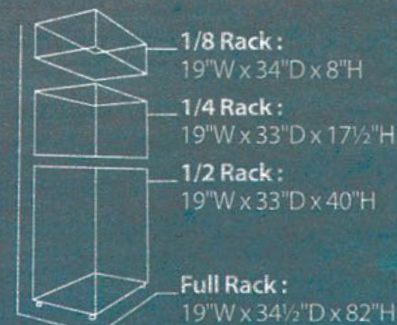


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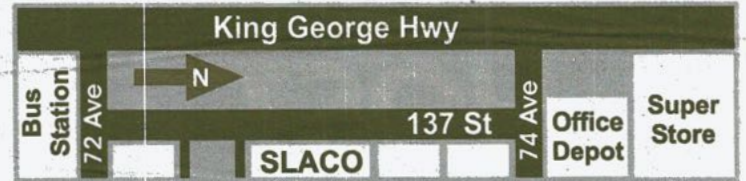
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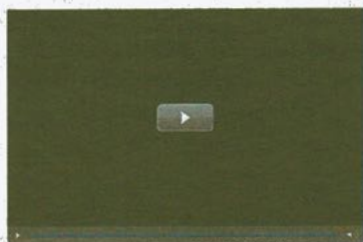


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WiiWare

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[How do I connect my Wii to the Internet?](#)

Latest WiiWare Games



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Healthcare Workers to get PDAs

By Dorian Nicholson

A new initiative by the Ontario government is aiming to put more power into the hands of the province's nurses in the form of personal digital assistants (PDAs). As many as 2,000 of Ontario's healthcare workers in hospitals, long-term care homes, and other similarly needy locations will be getting a PDA...

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Unofficial Portal Prequel Pleases

By Chad Sapieha

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Portal, of course.

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By Dorian Nicholson

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By Harry Powell

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Nintendo Unveils WiiWare

By Dorian Nicholson

Already breaking down borders in interactive gaming, Nintendo's Wii game system has now been further enhanced with the addition of WiiWare, a new way for Wii owners to bolster their collection of video games from the comfort of their homes.

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Canadian BlackBerry Users Unite!

By Dorian Nicholson

Recently Bell Canada announced the availability of a new program for BlackBerry smartphone users to install on their PC — BlackBerry Unite! BlackBerry developer Research In Motion (RIM) had intended to have the program released last November...

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Canada's Next (and First) Mobile Phone Photog Winner

By Harry Powell

Armed with her newly acquired Sony Ericsson K850i Cyber-shot 5 megapixel camera phone, Snezhana Zahorulko of Burnaby, B.C. has become the winner of the Sony Ericsson sponsored Search for Canada's Next Mobile Phone Photographer...

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Rogers and Fido Become One with Yahoo! Search

By Harry Powell

Rogers Wireless, Inc. and Yahoo! Inc. have announced Yahoo! oneSearch. Bringing the award-winning mobile search service to Rogers Wireless and Fido customers across Canada makes them the first North American carriers to offer Yahoo!'s mobile search...

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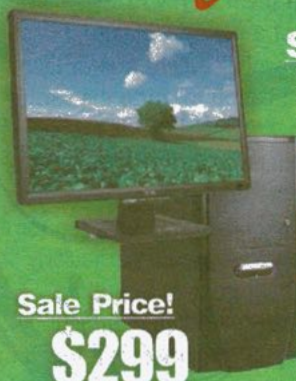
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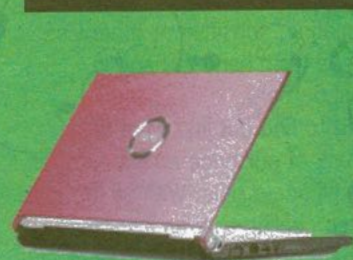
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Built-in Digital TV Receiver (optional)
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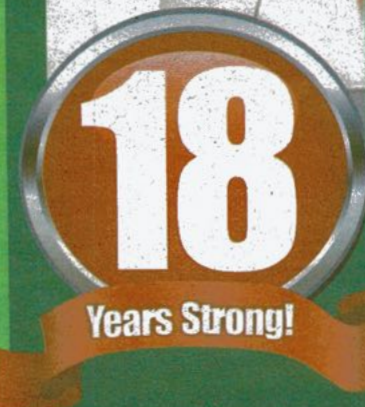
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Years of pious preaching came to a head for me last week.

Since I started doing this ("this," of course, being this whole tech journalism lark) my cohorts and I have been extolling the need for creating computer back ups. To create them regularly, to deal with them predictably (e.g. every evening before shutting down and a full back up once a week), to store them safely and securely and to tell all your friends to do the same.

Well, dear reader, I have sinned. I have been hypocritical in my backup routine for my laptop. More specifically, my complete lack of any sort of back up routine for said laptop.

My car was stolen recently. In the back, a bunch of stuff of varying importance. One of my guitars, a hiking daypack I particularly liked, my electric razor and, of course, a laptop; the ASUS Eee PC that we reviewed last month. The car was recovered by Hamilton, ON's finest and as I write this, we're waiting for the (long string of colourful expletives) insurance company to go appraise the damage before we can go pick it up. I'm hopeful that some of my clothes and such will still be in there, but I'm not holding out a lot of hope for the laptop. Or the guitar, for that matter.

The laptop wasn't actually mine; it was due to be sent back to the company that loaned it to me this week. That said, it had become an important part of my "digital lifestyle" and, owing to its tiny footprint and low weight, it accompanied me just about everywhere. The laptop can be replaced without much of an issue; it's not overly expensive and, once I pay out for the loaner that was lost, I intend to buy a new one. However, the data on that laptop would theoretically hold more value than the thing itself. Without a back up — other than the 1GB SD card that was inserted in to the card slot for off-saving work and which, along with the laptop, is now gone — I might have been out a lot of personal and professional data of varying import.

The laptop gave me access to all my documents both personal and professional. Pictures, music, videos, email addresses, phone numbers and so on.

While I'm sorry to see the laptop go, I'm not too worried about the data it held. In fact, there wasn't really much in the way of data on the laptop...

It's an emerging concept that's been dubbed "cloud computing." Rather than storing files locally on your PC, everything is stored online and accessed via any PC you use. Instead of navigating to the familiar "My Documents" folder to email the latest sales figures or going to "My Pictures" to browse through photos from last month's vacation, everything happens within the data "cloud." You

boot up a PC, open a Web browser, navigate to your online workspace and go. I use a Firefox extension called Speed Dial that gives me one-click access to the sites I use every day. It's modeled after the like-titled feature in the Opera browser and I find it to be an incredibly useful way of keeping all my oft-used online resources close at hand. I also use Google Gears to give me access to my documents when no Internet connection is available.

The theft, of course, does open up some security concerns. Few of the documents I work with are sensitive and when they are, I don't keep them on my PC. Instead when working with documents of a sensitive nature, I use an encrypted USB key and / or work straight from folders on the office network. When the laptop fell in to the wrong hands, one of my first thoughts was that I needed to get online ASAP to change all my passwords. I had a couple of them saved in the (password-protected) Firefox password manager. While I doubt they would have been cracked (or if they were, that whoever cracked them would particularly care to read about the minutiae that goes in to putting together HUB: The Computer Paper), I created an entirely new string of passwords — easy to remember but tough to crack phonetic, phrase-based ones substituting numbers and characters for letters and words with a few leading and trailing characters to be safe.

Like I said, I'm sad to see the little lappy go, but I'm secure in the knowledge that there's nothing on there that can't be easily and quickly replaced and also, there's nothing particularly incriminating, sensitive or otherwise dangerous now being passed from hand to hand in Hamilton's seedy criminal underbelly.

So, while we're still waiting to find out just what (if anything) remains in the trunk of our once errant auto, at least my data is safe and still accessible. With all the stuff that has to be endured when dealing with an insurance company that seems hell bent on making the whole experience as decidedly unlike a good neighbour experience as possible, that's no small relief.

Enjoy the issue,
Andrew Moore-Crispin

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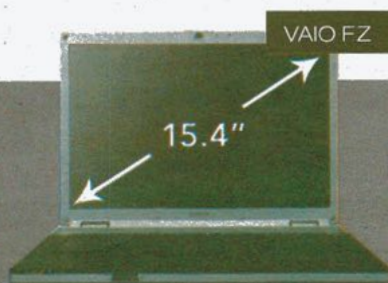


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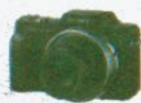
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Photo Geotagging as Easy as di

di-GPS connects directly to Nikon, Canon SLRs

Nice picture, where was it taken? The more photos I accumulate, the less often I can say for certain. When I first heard about photo-geotagging, I thought it was a neat idea, if for no other reason than to reduce the number of lame excuses I'd have to give for not remembering.

Within the EXIF (Exchangeable Image File Format) portion of each digital image file is a wealth of information including tags to identify location. Few cameras natively exploit the location tags, but you can fill them with the correct location information after the fact. The early solutions were somewhat homebrew — if you had a handheld GPS unit, you could take it with you to record location data, then use special software and a PC or Mac to add the correct GPS data to each photo.

Then I learned that some higher-end Nikon SLRs can write GPS data directly to a JPEG or even an NEF RAW file. You still need a handheld GPS unit plus a special Nikon MC-35 cable that connects to the camera's communications port, but no post-processing is required because the location is recorded in the camera original.

A Hong Kong-based company called Dawn Technology Ltd. (www.dawntech.hk) has a more refined solution called the di-GPS. This GPS unit was originally designed only for the Nikons that had GPS support,

but recently the company added a USB model that is compatible with higher-end Canon SLRs. The USB model requires the cameras be equipped with Canon's WFT-E3 or WFT-E2 (depending on the camera model) wireless transmitter module, however.

In to the fray

The unit I purchased in late February was a second-generation model for Nikon cameras, and that's the unit on which this report is based. It cost just over \$300 including shipping, but the company has since come up with two third-generation models for Nikon (in addition to the USB model for Canon) that are somewhat less expensive. Compared to a handheld GPS unit plus MC-35 cable, the di-GPS advances usability in three ways. First, it is much smaller than your typical hobbyist GPS unit. Second, it has a shoe mount so it attaches directly to the camera's hot shoe (you can also attach it to a camera strap). Third, the short cable attaches directly to the camera's MC-35 port. The net of those three features is a tidy and compact unit that does its job but stays out of your way. My unit has a 2.5-mm mini socket that will accommodate a (shades of sacrilege) Canon or Pentax remote control unit (or other camera remotes with a 2.5 mm connector), but the third-generation Pro model has the correct 10-pin connector for a Nikon remote.

The di-GPS unit draws its power from the camera and there were apparently some power drain issues with the first-generation unit. The second generation unit has a three-way switch that allows you turn the unit off, leave it always on (to maintain a satellite fix) or set it to be turned on and off in sync with the camera's state. It also provides better compatibility with the improvements Nikon made to the GPS feature in the D3 and D300 models. The unit has a single red LED light that glows if the unit has a fix and blinks if it's searching. I've used the unit on a Nikon D300 recording just shy of 2,500 GPS-tagged images over two months. Following are some observations.

Battery hit: modest. The battery that comes with the D300 is rated for around 1,000 exposures per charge. Since the di-GPS draws its power from the camera,

you would expect to see a reduction in shot capacity. However, I did not find it a serious hit. On a recent trip overseas, I shot around 150-300 images per day, and even with the GPS unit on, the battery meter was still showing at least two bars (50 per cent) at the end of most days.

Signal acquisition and tracking: very good. Even on overcast days I found the GPS unit was as quick to lock onto the GPS satellites as other GPS units I've used — typically a minute or less. On buses and trains, especially if they were moving, locking on took longer. The unit stopped working if I went underground into a subway station or ventured into a multi-story building, as you would predict. But I was surprised to find that the GPS unit stopped picking up any signals at the top of the CN Tower — maybe some kind of interference or shielding?

Accuracy: how close do you need to be? Consumer GPS units are supposed to be accurate to within several metres, and I found that when I mapped the GPS-tagged photos using Google Earth maps, they were pretty close. For example, when I mapped an image I took of the radical (architecturally) expansion to the Royal Ontario Museum in Toronto, the Google Map correctly placed the map pin on Bloor Street. On another shot I took from a ferry as we approached an island, the map pin showed me in the water.

Overall: The di-GPS has a permanent place in my camera bag. It is small and light, attaches quickly to the camera via the hot shoe mount and has a short but sturdy connection cable. It does draw power from the camera's battery, but with the Nikon D300's battery rated at 1,000 exposures, I found I could do a typical day of shooting with the GPS unit attached on a single battery charge. And the fact that the camera writes the location data to the original file means there's no post-processing step. One minor irony: When I map photos I took in Japan, the maps that come up in Google Maps are labelled in Japanese, so I still can't answer the question "where was that taken?"

By David Tanaka



di-GPS on Nikon D300

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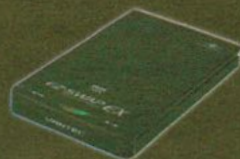


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Pimping Your Ride, Geek Style

A computer in every car? The concept suddenly doesn't seem so out there.

Don't you just hate it when you see some driver pull a bonehead move, only to realize he's been too busy playing with his audio system to fully comprehend the magnitude of his boneheadedness? Well just imagine if instead of a mere audio system, he had an entire computer in the dash. Imagine if she was composing a document while sorting through photographs. Or maybe, horror of horrors, playing some sort of demented driving game. All the time while piloting two tons of speeding, metallic doom. How bad would that be?

Such a possibility isn't nearly as far-fetched as it may seem. With DVD players and GPS systems becoming de rigueur, and many of today's audio systems already sporting more controls than the entire interior of a Kia and ample facilities for iPods and USB drives, can full-blown computers be that far behind?

Actually, they're already here. And we're not talking glorified calculators either.

Power to burn

Take a gander at the soon-to-be-released Atlas CPC-1200 on our cover. Hailing from Michigan-based Azentek (www.azentek.com) and winner of the "Best of CES" award in the Car Tech and GPS category at the 2008 Consumer Electronics Association show in Las Vegas, the CPC-1200 promises to handle virtually anything your home PC can.

Certainly the current parts list is nothing to laugh about. At its heart is a reasonable 1.66GHz Intel Core Duo processor with a 667MHz front side bus, along

with 1GB DDR2 memory, (upgradable to 2GB), a 120GB hard disk, and a DVD-ROM/CD-RW drive. The system, is about twice the height of a regular car stereo (called "double-din") and features a 6.5-inch touch screen/display, hybrid flash/hard drive technology for instant-on capability, 5.1 sound, and Microsoft's Windows Vista operating system.

What can you do with it? You can listen to music and watch movies stored on the hard drive, hammer out documents, archive and organize photos, connect to the Internet, download navigation information, connect Bluetooth devices, play games, listen to and create emails via built-in voice recognition, watch what's going on behind you with an optional rear bumper cam, and, with other optional hardware, monitor critical vehicle diagnostics. You can even compute in the front seat while the kids watch a movie in the back.

The question is then: What can't you do with it?

Stay safe

Fortunately for you — not to mention the other motorists on the road — the CPC-1200 will limit your access to music and GPS anytime your vehicle is moving, thus rendering the potentially unpleasant scenario at the opening of this article far less likely. But shift your car into Park and you'll have a shockingly potent computer at your disposal, all housed within your dash.

Still, there's a big hitch to this and any of the other ready-made, all-in-one "carputers" just now appearing on the horizon. And that hitch is the price of

admission. The CPC-1200, for example, will set you back US\$2,799 when it appears in the winter of 2008.

But what do you do if you're feeling psyched on the idea of a dashboard PC — and we believe the technology is advancing and gaining acceptance quickly enough to warrant at least some consideration — but can't stand the thought of waiting until winter or dropping nearly three grand in one fell swoop?

Slow your roll

Suggestion Number One: Wait. There are a number of substantially less expensive DIY and piecemeal alternatives that we'll get into in a moment, but they are just that — DIY and piecemeal. If you're handy and you have a burning desire to take the plunge, by all means go for it. But we're at the birth of what promises to one day be an automotive mainstay, and it won't be long until all-in-one, mass-produced carputers are as common as in-dash DVD players. And remember — mass production always reduces cost.

Suggestion Number Two: Look into alternative all-in-one systems. Azentek may currently be at the forefront, but it isn't the only manufacturer out there. Korea's Infill (www.infill.co.kr/english/product/g4_feature.asp), for example, was one of the first firms to ever manufacture ready-made carputers, and its all-in-one G4 is a less potent but also less pricey option.

Suggestion Number Three: Build your own. This whole car computer idea is not new. It's been around since the 1990s and there are thousands of carputers already on the road. Moreover, it's almost exclusively





been the stomping ground of hobbyists and home-brew geeks until the middle of this decade. Thusly, there's a huge and very visible community out there, with no shortage of good-natured folk ready to help other enthusiasts, budding or established.

Where to turn first? For starters, there are several good books on the subject, including Damien Stolarz' *Car PC Hacks: Tips & Tools for Geeking Your Ride*, and Gavin D J Hopper's *Build Your Own Car PC*. Both are currently in wide distribution.

Books? What are those?

The Web, of course, is an even better source for information. Though sites such as InDashPC.org (<http://indashpc.org/new/>) and Dashboard Monkey (dashboardmonkey.com) are decent enough, by far the most recognized and recommended site is that of Maryland's Mp3Car (www.mp3car.com). Mp3Car sells virtually anything and everything in the carputer field, mostly on a component basis but also as assembled systems that are substantially cheaper than the all-in-one solutions mentioned.

But arguably the most important part of the website for anyone who wants to concoct their own DIY setup is the Mp3Car.com discussion forum. Extremely current, exceptionally busy, and overflowing with information for both newbie and old hand, the Mp3Car.com forum may well be the only place you'll ever need to turn for online advice and assistance. Yes, it's that good.

So what do you need for a carputer? That depends very much on what you want to do with it, how much available space you have and, of course, your own budgetary restrictions and level of electronic/install competence. At the very least, you'll need a CPU (low power, low heat models such as those found in laptops are arguably the best for the job), a motherboard (mini-ITX form factor motherboards are certainly compact enough), a hard drive (solid state drives are more shockproof than traditional spinning disk drives and are plunging in price), a display (seven-inch touch screen VGA displays are the current norm), and a power supply (a straight-up DC-DC power supply should suffice). Of course, there's much more to it than we can describe within the context of this article.

I'm not cheap, I'm just thrifty

Nevertheless, if you play your cards right and aren't overly demanding, you should be able to put together a workable system that'll allow you to do just about everything you need to do for less than \$1,000. But remember, if you also want a premium audio setup, GPS, reversing cameras and all that other cool stuff, and if you crave a gorgeously appointed product that stays entirely behind and within the dash, both your end cost and your time spent on the project will escalate rapidly from there. Ultimately, from both a practical and financial perspective, a home-brewed carputer is not something to be entered into lightly.

Indeed, car PCs of any sort will cost you one way or another. Whether you want to jump right in now or hold off for a bit is up to you, but just imagine all the nifty things you can do the next time you're waiting outside a shopping mall for your significant other.

By Gord Goble

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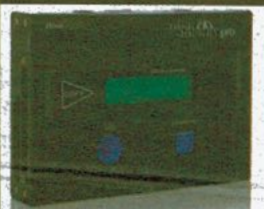


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In the Lab: Standalone GPS Devices

Navigating the physical world in the digital age

Our children will wonder how we ever managed to find our way around town using just our heads and scraps of paper filled with squiggly lines.

Global Positioning System (GPS) devices have now entered the mainstream and will soon be as ubiquitous as cell phones. In fact, most of the time, they will be cell phones — Gartner research suggests that in two years more than 500 million mobile handsets sold each year will be GPS-enabled.

Of course, a market will still exist for other types of GPS devices. Most car manufacturers offer luxury navigation systems as add-ons, and as prices continue to fall these systems will eventually become a standard feature even in mid-tier vehicles.

And there will always be those who prefer simply to have a dedicated portable GPS device, either because they want the ability to take their navigation systems with them when they leave the car, or because they want more robust GPS functionality than what can be offered by a cell phone. Indeed, nearly 100 million discrete GPS units will be sold annually by 2010, according to Gartner.

In the Lab this month are five GPS units designed to alternate between personal and vehicle usage. They range from bare bones devices that can do little more than help you on your way from point A to point B (Mio's Moov C200) to wunderkind gizmos that do almost everything except pay for your gas and meals along the way (TomTom's Go 920).

Of course, the difference between the functionality offered by these units is reflected in their price tags, which range from \$199 to \$499.

In our tests, they all did a respectable job of discerning a smart route from one location to another, and guiding us on our way. The question, really, is how much more you want your GPS to do apart from simple navigation?

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Points of interest: **Approximately 6 million**

Longest time to fix current location: **45 seconds**

Bluetooth pairing with cell phones: **Yes**

Battery: **7 hours**

Multimedia: **MP3 and JPG playback, FM transmitter, audio book player**

The heavy hitter in our testing pool, this luxury GPS device has all the features you'd expect of a high-end standalone GPS — as well as a few you might not.

The nüvi 680 has a wonderfully bright and glare-resistant screen, terrific battery longevity and, as one might expect, excellent navigation features. We found entering and storing addresses to be fast, simple, and highly intuitive. And once a destination was selected, we appreciated having the ability to plot and select routes best suited for travelling by foot, bicycle, bus, or car.

It also has a massive collection of points of interest — the largest of any device we tested — and even allows you to create your own so that you can, say, mark the exact location of that wonderful little diner



Garmin nüvi 680

you accidentally stumbled upon just off the highway.

And if you're travelling to areas unknown, you can buy and download additional software, including Garmin's own SayersGuide — a list of 30,000 restaurants and retailers in North America that offer significant discounts and specials to Garmin users.

But the primary draw for savvy GPS consumers will be the nüvi 680's support for MSN Direct, a service from Microsoft that provides a wealth of helpful information for folks on the road, including traffic reports, which the device can then use to plan routes that bypass areas of congestion. Other MSN Direct traveller information includes local gas prices, weather reports, and even movie show times.

However, there are a couple of downsides to MSN Direct.

For starters, Microsoft's network of FM transmitters — the means by which information is sent to MSN Direct devices — is currently limited in Canada to its most densely populated areas — less than a dozen major cities. We had no problem picking up the service in Toronto and surrounding area, but we can't vouch for its availability elsewhere in the country.

Also, MSN Direct isn't free. A one-year subscription is included in the price of the nüvi 680, but after that you're looking at US\$50 per year to keep it going.

However, even if MSN Direct doesn't work in your location or fit your navigation budget, the nüvi 680's excellent navigation abilities combined with piles of extra perks (including Bluetooth/cell phone pairing and an FM-transmitter to play music through your car stereo) make it an undeniably desirable gadget.



Sony nav-u NV-U83T

Sony nav-u NV-U83T

\$449 www.sonymstyle.ca

Weight: **244 grams** Screen: **4.8-inches, 480 x 272**

Voice command: **No** Traffic monitoring: **Optional**

Preloaded maps: **North America**

Points of interest: **Approximately 5 million**

Longest time to fix current location: **2 minutes**

Bluetooth pairing with cell phones: **Yes**

Battery: **2 hours** Multimedia: **None**

The biggest and heaviest of all the GPS units we evaluated, Sony's nav-u NV-U83T looks like it means business. It veers away from the many of the standards set by the bigger players in the GPS arena, offering a larger than average screen and several novel features, such as "Gesture Control."

Gesture Control allows users to bypass the unit's menu system for a variety of commands, providing one-touch inputs in the form of finger swipes and swirls. Moving your finger in clockwise and counter-clockwise motions, for example, sets the map to preset scales. Also, drawing a circumflex (an upside-down V) sets your destination to home, while making quick, L-shaped swipes can reroute you to two preset locations.

Neat feature. But another Sony exclusive called Position Plus is even better.

GPS devices rely on line-of-sight with orbiting satellites, and often lose signal when driving through tunnels, among tall buildings, or near steep inclines. Position Plus uses motion sensitive sensors inside the NV-U83T to detect changes in your speed and direction during times when the device loses contact with satellites, estimating your current position and keeping you on route. It worked splendidly in our tests, seamlessly and accurately tracking our car as we sped through several tunnels.

However, while we like the new features that the NV-U83T's brings to the table, we're a little baffled by some of the functionality it's missing. It does have Bluetooth for pairing one's cell phone for hands-free calling and optional NAVTEQ service for traffic updates, but it lacks other features that one might expect of a GPS in its price category.

Like MP3 and JPG playback. This omission is particularly surprising given that this is device made by Sony, an industry leader in portable media playback.

It's also missing predictive text entry, a relatively common feature that suggests possible ways to complete the names of streets and cities as you spell them out. Without it, inputting new addresses becomes a tiresome chore.

And, perhaps the most annoying quirk, it took longer than any other unit we tested to establish a satellite link from a cold start and get a fix on our position. Usually it found itself in 30 or 40 seconds, but there were times when it took more than two minutes to identify its location in open areas with clear skies.

These aren't deal breaking issues, but they are problems that we hope to see remedied in the product's next generation.



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TomTom Go 920

\$449 www.tomtom.com

Weight: **218 grams** Screen: **4.3-inches, 480 x 272, ambient light sensor**

Voice command: **Yes** Traffic monitoring: **Optional**

Preloaded maps: **North America and Europe**

Points of interest: **Approximately 5 million**

Longest time to fix current location: **45 seconds**

Bluetooth pairing with cell phones: **Yes**

Battery: **5 hours**

Multimedia: **MP3 and JPG playback, FM transmitter, audio book player**

The best all-around unit we tested, TomTom's top-of-the-line Go 920 impressed from the moment we lifted it out of the box. The build quality of this luxury standalone GPS is terrific; we couldn't get any plasticky creaks or squeaks out of it no matter how hard we twisted its solid frame. And with its gently

TomTom Go 920



curving back, matte grey case and silver accents, the Go 920 is the sort of gadget that chic geeks would be proud to show off to their friends.

Things got even better once we turned it on.

The unit comes preloaded with a massive amount of travel and navigation software, including a surprisingly comprehensive roadside first aid guide and country-specific tourist information for accommodations, local bank hours, and shopping guides. It also has a feature called Help Me that summons the quickest routes available to drive or walk to several emergency locations, including hospitals, pharmacies, dentists, and veterinarians.

Sign up for TomTom Plus and you can get even more features, including traffic, weather, and fuel prices, via your Bluetooth-paired cell phone, as well as the TomTom Buddies service, a GPS community that allows TomTom users to share their own personal points of interest.

Another of the Go 920's software advantages is that it comes preloaded with maps not only for North America, but also Western and Central Europe — a significant bonus, as maps rank among the most post purchase expenses for GPS owners.

To navigate these maps, all you have to do is tell the Go 920 where you want to go. Thanks to the device's impressive speech recognition software, there's no more need to stop driving and tap in the address of a new location if you need to change your route on the fly. It's not perfect, but the voice software does take into account regional accents, and it made relatively few mistakes in our tests. If you prefer to type your

addresses, the Go 920 offers a traditional address entry system instead.

We have yet to even mention the device's remote, its Enhanced Positioning System for tracking your position when out of satellite range (which operates much the same way as Sony's Position Plus), or its elegant and easy-to-use media player.

Simply put, there's little not to recommend with TomTom's flagship GPS.

Mio Moov C200

\$199 www.mio.com/ca/en Weight: **136 grams**

Screen: **3.5-inch, 320 x 240 pixels**

Voice command: **No** Traffic monitoring: **No**

Preloaded maps: **North America**

Points of interest: **Approximately 3.5 million**

Longest time to fix current location: **1 minute**

Bluetooth pairing with cell phones: **No**

Battery: **2.5 hours** Multimedia: **None**

Small, light, and wonderfully inexpensive, Mio's brand new Moov C200 is a no-frills GPS designed to do just one thing: Get your butt from here to there. It was designed with the thought that there are people who don't need a GPS device loaded with features they will never use and indeed, if all you're looking for is a little help finding your way in your car or on foot, then the Moov C200 offers a very capable solution.

Its design is as simple as its purpose. A plain, squarish, black plastic case surrounds a small but clear screen, with no external buttons save a power switch. Roughly the same size and weight as a man's wallet, we hardly noticed it in our pocket.

However, the reduction in screen real estate means many of the Moov C200's touch buttons are smaller than those of larger GPS devices, and that fewer menu items are shown on screen at any one time, though that's not much of a problem, since, without extras like a multimedia player, Bluetooth functionality, and travel guides, there aren't many menu options through which to scroll.

While the Moov C200 scrimps on luxuries, it delivers some good solid necessities in the form of excellent map and navigation functionality. Like its more expensive competitors, it does a fine job of blurring out directions and street names on cue. Also, it's a piece of cake to zoom in and out on the map, switch between 3D and top-down views, and call up and sort through points of interest.

Dig into the options, and you can use a slider to alter routes for shortest driving distance or fastest time, set your preference for driving on highways, and select whether or not you'd like to avoid toll roads and ferries. It even provides driving speed alerts. All

Mio Moov C200



LG LN735



features found on fancier units, but it's nice to see them on a less expensive model.

To top it all off, the Moov C200 comes with one of the simplest and most practical dashboard mounts we've seen. It's small, sturdy, easy to detach, and provides good 360 degree tilt and rotation action.

Indeed, it's enough to make a consumer wonder just how much he needs all of the extra perks of more expensive devices.

LG LN735

\$329 www.lg.com

Weight: **166 grams** Screen: **3.5-inch, 320 x 240 pixels**

Voice command: **No**

Traffic monitoring: **No**

Preloaded maps: **North America**

Points of interest: **Unspecified millions**

Longest time to fix current location: **1 minute**

Bluetooth pairing with cell phones: **No**

Battery: **4 hours** Multimedia: **MP3 and JPG playback**

At first glance, LG's LN735 looks as though it's an overly expensive competitor to Mio's similarly sized budget GPS. In truth, it's got a bit more going on, thanks to features like a picture viewer, an MP3 player and some handy external controls for calling up menus and adjusting system volume.

Unfortunately, it suffers from a heaping helping of niggling issues.

One of the LN735's most noticeable problems is its screen, which, though adequately bright, performs poorly when viewed from an angle. This makes it difficult for two people to view it in or out of a car, and reduces the value of its photo viewing functionality.

The unit's poor sound is even more vexing. The built-in speaker is weak and tinny, making it difficult to hear spoken directions. What's more, the computer voice is grating and sometime can sound garbled. With no microphone jack or FM transmitter, there's no way to listen to MP3s save through the device's speaker, making the MP3 player functionality all but useless.

The final nail in the coffin for the LN735's multimedia features is that they can't be accessed without shutting down the navigation mode. In other words, you can't listen to music or view a photo without negating the device's primary purpose.

On the bright side, the LN735 is a capable little navigator. It has a simple and intuitive interface that makes entering addresses and calling up favourites a breeze. It doesn't offer any unique options in the way of avoidances and route customization, but the routes it found were generally quick and reliable.

Still, the same sort of performance is found in devices that cost a lot less — like the Mio in our test pool. The LN735 doesn't do enough to justify its price.

By Chad Sapieha

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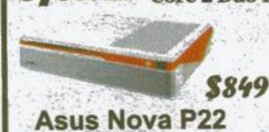


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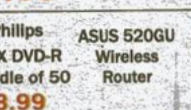
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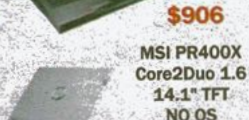
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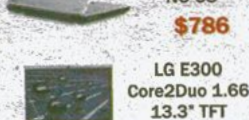
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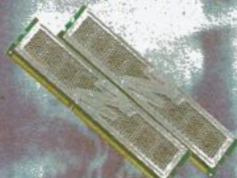
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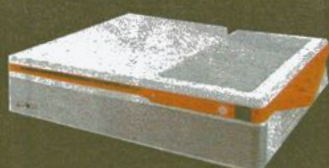
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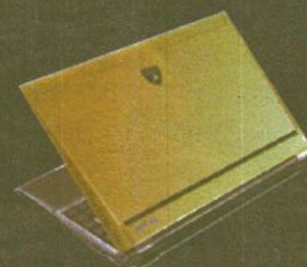
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ACER BILING EK5420AMD DC2.0VHP 2G,250G,15.4WXA.GA.DVD/RW,WEBCAM	762	ASUS F8P-C1B 15550 965PM VBE 3G-DDR2 250G SUPERM DVD RW	1121
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Working with Microsoft Office Live Workspace

Online anywhere access to the Office

How do you share documents when you're working collaboratively on a project? If you shunt documents backwards and forwards via email, then perhaps it's time to investigate Microsoft Office Live Workspace. Microsoft Office Live Workspace is an online collaborative tool that lets you share documents and workspaces with other users. It interfaces direct into Office applications and it even retains a short version history of your documents. When you share documents using Office Live Workspace you'll have one storage place for all your documents, you'll know which is the most recent version and you can track when others make changes.

If you are familiar with SharePoint you will recognize Microsoft Office Live Workspace as being a consumer version. You don't need to set up a special server or go to any great expense because Microsoft Office Live Workspace is free. It gives you storage for up to 500 MB of files and lets you

preview documents such as Excel worksheets, Word documents and PowerPoint presentations online. As a file sharing space, Microsoft Office Live Workspace isn't a challenger to the likes of Zoho Office or Google Docs. Office Live Workspace can't be used to create anything more than simple lists and notes, so you need to have Office installed on your computer to make best use of it. That said, Office Live Workspace can be integrated with Microsoft Office so that you can save documents direct from applications such as Word, Excel and PowerPoint to Microsoft Office Live Workspace online and bypass the need to save them on your local hard drive. When you do this, your documents are stored securely online, and you can access them from any computer using a Web browser. So you could, for example, save a document on Microsoft Office Live Workspace from your computer at work and access it on your computer at home any time.

Sign up

Microsoft Office Live Workspace requires you to have a Windows Live ID, but it is different to Windows Live. To sign up for Office Live Workspace visit <http://workspace.officelive.com> and sign in with your Windows Live ID. If you do not have the required ID, the site provides links for you to obtain one before continuing.

When you sign in, the left side of the screen shows the workspaces. Located under your My Workspaces area is Documents. Documents stored in this folder can be shared on an individual basis with other users. You can also create workspaces by clicking the New Workspace option. Workspaces can be created as blank workspaces which are much like Windows folders or you can create a workspace which is preconfigured for completing particular tasks such as organising a meeting or making travel arrangements.

You cannot share individual documents from a workspace. Instead, you must share the entire workspace. You can upload documents from your PC into the Documents area or a new workspace by clicking the Add Document button. Once uploaded, you can preview these Word, Excel and PowerPoint documents on the screen by clicking them and they will open and display in the browser. To edit a document, select it and click the Edit button. If it is an Office document it will be downloaded to your computer and opened in the appropriate Office program. When you have finished editing the document, click Save to save it back into your Office Live Workspace area.

Sharing documents

To share a document with someone, click the document to select it, and click Share > Share Document. An email form appears in which you can type the email addresses of those people who should be given edit access and those who can view it but not make changes to it. Each email recipient will receive a message that includes an invitation to share the document and a link they can click to accept the invitation. They will find the document in their Shared With Me area in Office Live Workspace.

Creating documents online

To create a new document, click the Documents area or a workspace name and click the New button. In this menu

you will see options to create a Note or a List — both of which can be created online using the program's editors. Lists are a table of information with columns and rows and you can configure the columns to contain certain elements such as single or multiple lines of text, a number, a yes/no entry or a date. You can sort your list data by selecting the downward-pointing arrow to the right of the column name and select the sort order. In addition to creating and editing your lists online, you can also export them to Excel by clicking the appropriately named Export to Excel button. Notes are simple rich text documents which are useful for short documents. They can be formatted using different fonts, font color, highlighting, and bullets and numbering.

Task lists, Contact Lists and Event Lists are items that can be created online too, and these can be synced with Outlook so that you can create a task list which can be linked to your local version of Outlook. To do this, you'll need to link the online and offline versions by selecting your Task List and click the Connect to Outlook link.

Linking with Office applications

To make it easier to work with Microsoft Office Live Workspace from inside Microsoft Office applications, download and install the Microsoft Office Live Workspace add-in from <http://tinyurl.com/67xuv6>. This adds a toolbar to Office 2003 applications with buttons for saving and connecting to the workspace and, if you are using Office 2007, new items will be added to the Office button menu.

Added workspace options

When you have a workspace or document selected you can view any activity on that document or workspace by clicking the Activity button. Here you will see a list of the current activity for that workspace. You can use comments to carry on a conversation with other people who have access to the shared workspace and which is separate from the actual workplace documents.

Microsoft Office Live Workspace is an excellent tool for working collaboratively or when you need online storage for Office files. It is free, it can be closely integrated with Microsoft Office applications, and it provides a simple interface for storing and sharing documents online.

By Helen Bradley



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AMD 4800 / 5200 / 5600 / 6000 / 6400 ---\$85 / \$109 / \$129 / \$159 / \$169
AMD PH8450 / 8560 / 9550 / 9750 ---\$149 / \$169 / \$199 / \$219

Intel e2180 / e2200 / e4600 / e7200 / e8400 ---\$80 / \$95 / \$135 / \$155 / \$205
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In Touch in the Field

FRS / GMRS radios keep you connected outside of cell phone range

You've probably seen families at the amusement park, out camping, skiing or doing other outdoor activities keeping in touch with portable walkie-talkies. Family Radio Service (FRS) and the devices that use it are a little more sophisticated than simple one-channel walkie-talkies. They have numerous channels, privacy codes, call functions and generally a much greater range than toy walkie-talkies. That said, under the Canadian Radio-television Telecommunications Commission (CRTC), they fall into the same category as baby monitors and cordless phones — "low-power radiocommunication devices."

FRS radios have been around for quite some time. At the low end, you can pick up a pair that run on standard batteries for as little as \$40. These radios will be limited in range, likely won't offer the full spectrum of designated FRS channels (there are 14 in all) and often won't use privacy codes which lessen the odds of someone listening in on your communications.

This raises a good point: FRS is a license-free radio band. Treat all communications on FRS as inherently not secure... because they're not. Anyone on the same channel or, on a radio equipped with privacy settings, using the same privacy code (from one-38 in each

Rino 120



band) can hear your communications. In fact, privacy codes would perhaps be better described as traffic managing codes; their real purpose is to allow different people to communicate across the same band without stepping on each other's transmissions.

New standard

A fairly recent standard (relative to FRS which has been around for some time) is General Mobile Radio Service (GMRS), approved in Canada in 2004. While a license is required by law in the United States, GMRS is open for public use in Canada though the allowed wattage of transmitters (two watts) is less than the five watts allowed in the US for handheld radios with integrated antennas. That said, in the US there's an \$85 licensing fee to use the service. GMRS shares seven channels with existing FRS radio and includes eight GMRS-only bands.

FRS / GMRS radios are an ideal way to keep connected with family and friends while camping, hiking, visiting the fair or just about anywhere. They're especially useful in outdoor situations; they allow kids freedom to explore around camp while affording parents a little peace of mind.

Word to the wise

Be advised that manufacturers often make bloated claims as to the range of their radios. As with all FRS or GMRS radios, your mileage will differ when used in the field; cut the range by about a quarter to get a more accurate idea... and even then, that calculation is for a real world best-case scenario. The best-case scenario in this case is a line-of-sight communication. Anything in the way of the line-of-sight will impact

reception, sometimes significantly.

There are also radios that are incorporated with handheld GPS units — again, perfect for the outdoors — that allow users to not only maintain a voice link but that can also transmit location data between units and allow users to navigate toward each other using the on-screen map.

Rino 520 HCx

Garmin

www.garmin.com

Battery life (manufacturer supplied): 16h

Dimensions: 5.8 x 19.0 x 4.6 cm

\$385/ea.

The Garmin Rino 500 series (which includes the pricier 530HCx tested at about \$425 per unit) incorporates a 3.3 x 4.3 cm, 256 colour display, turn-by-turn directions including addresses and points of interest for when your explorations are in town as opposed to on the trail. 500 series radios also include 56MB of internal memory and the 530HCx also offers expandable memory for maps, points of interest and user data via a MicroSD card slot. They offer five watts of transmission power in the US but would be limited to two watts to meet CRTC requirements. This translates to a claimed 14 miles using GMRS in the US (five watts) and up to eight miles in Canada (two watts). The radio can also transmit small amounts of data over the radio band to send and receive location coordinates. This allows two Rino GPS / radio devices to "find" each other in the field.

Radios in the 500 series are also waterproof to IPX7 standard which translates to "accidental immersion in one meter of water for up to 30 minutes."

The radios use rechargeable lithium ion batteries and promise a battery life up to 16 hours. The internal memory affords track logging of 500 waypoints / favourites, 50 routes, 10,000 points and 20 saved tracks in addition to map data. We'd like to see an option to use standard cell batteries in addition to the battery pack to give the radio / GPS combo a bit more flexibility.



Rino 530HCx



Motorola T7100R

Rino 120

Garmin

www.garmin.com

Battery life (manufacturer supplied):
15h

Dimensions: 5.8 x 17.6 x 1.6 cm
\$160/ea.

The Rino 100 series eschews the colour screen in favour of monochrome (160 x 160, four-level grayscale LCD) and offers 14 channels on the FRS band and eight on the GMRS along with 38 sub bands for more private communications. The series claims a range of two miles on the FRS range and five on GMRS. The 100 series uses three AA batteries and promise a battery life up to 15 hours. The 8MB of internal memory (not expandable) affords storage for 500 waypoints / favourites, 2,048 points, 20 routes and 20 saved tracks.

T7100R

Motorola

www.motorola.ca

Battery life (manufacturer supplied):
not specified

Dimensions: 5.6 x 16 x 5 cm
\$90/pair

Motorola has long been a name in FRS / GMRS radios. Its Talkabout series reached ubiquity in what is admittedly a small product category with a small user base.

The T7100R is among the latest in Moto's line of radios and it's designed with outdoor enthusiasts in mind. It features 22 channels (seven FRS, seven FRS/GMRS and eight GMRS) along with 38 "interference" (previously known as privacy) subsets to secure a slightly more private channel.

As with many of Motorola's radios, the T7100R features a drop-in recharging dock to charge the NiMH battery pack that ships with the units. They promise a range of up to seven miles and feature a backlit display for easy viewing and clips to attach the radio to a belt, bag, backpack or piece of clothing. However, negative end user reports of build issues and a range of about a mile abound online.

microTALK LI 6500 (aka GMRS 35-km Bundle)

Cobra

www.cobra.com

Battery life (manufacturer supplied):
not specified

Dimensions: 3.8 x 14 x 5.1 cm
\$80/pair

Cobra made a name for itself in the 1960s as a citizen band (CB) radio maker and hit boom times in the 1980s and 1990s with its radar detectors. It has since evolved to create FRS and GMRS radios for personal use as well as in-car GPS

navigation systems and marine electronics. The company continues to make CB radios as well as radar detectors the latter of which are, as you probably know, illegal in most provinces.

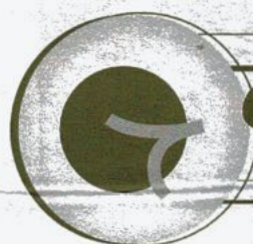
The microTALK LI 6500 GMRS / FRS radio bundle includes two radios and a desktop cradle charger. The radios use Li-ion battery packs and include earbud headphones for partially hands-free operation. 22 channels across FRS and GMRS bands include 38 privacy codes.

As previously mentioned, these codes make your conversations less likely to be overheard but are not at all secure in the traditional sense of the word.

Canadian Tire, the exclusive retailer of this particular Cobra bundle, suggests a 35km range for the radios based on Cobra's likely bloated 20 mile range claim. Expect significantly less than that as with all handheld radios, however.

By Andrew Moore-Crispin

Cobra microTALK 6500



1266 West Broadway, Vancouver, B.C. V6H 1G6 (Between Oak & Granville)

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fax: (604) 731-1273

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Athlon64 3200+	Athlon64x2 4600+	Athlon64x2 6400+	Dual Quad-Core Xeon
Asus M2V-MX Motherboard 1G PC5400 DDR2 RAM 160GB (7200rpm) H/D 20x D-Layer DVD-+RW S3 3D Graphics O/B Keyboard, Mouse & Speakers	Asus M2A-VM HDMI M/B 1G PC5400 DDR2 RAM 250GB (S-ATA 7200rpm) H/D 20x D-Layer DVD-+RW Radeon X1250 Graphics O/B Logitech Keyboard & Opt. Mouse Power Amplified Speakers HDMI, Firewire, HDTV	Asus M2NE NF570 Motherboard 2G PC6400 800 DDR2 (Dual-Channel) 500GB (S-ATA 7200rpm) H/D 20x D-Layer DVD-+RW Geforce 9800GT 512MB D-DVI V/C Antec NSK4480 Case Logitech Keyboard & Opt. Mouse 2.1 Speakers w. Subwoofer + \$60 Phenomx4 9550 Quad CPU	2x Quad Xeon E5405 (24MB Cache) Intel Server Board S5500/SA Motherboard 2G Kingston ECC DDR2 (Dual-Channel) 1TB (2x 500GB 32MB) H/D - Raid 20x D-Layer DVD-+RW Antec Titan 650 Server Case Logitech Keyboard & Opt. Mouse
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Monday
to
Saturday
11:00
to
19:00
Sunday
12:00
to
16:00



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Hot Deals from Notebook Specials!



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Eee - PC900	9" - 12GB - 1GB RAM - Camera - XP	\$ 559
Eee - PC900	9" - 20GB - 1GB RAM - Camera - Linux	\$ 559
Acer Aspire 5315-2013	Celeron 1.86 - 1GB - 120GB - DVD±RW - Vista Basic - 15.4"	\$ 499
Acer Aspire 2420-2355	Dual Core Celeron 1.7GHz - 1GB - 160GB - DVD±RW - Home Premium - 12" - Camera	\$ 660
Acer Extensa 5620-4792	Dual Core 1.7GHz - 1GB - 120GB - DVD±RW - Vista Business / XP Pro - 15.4"	\$ 639
Acer Aspire 7720-4294	Dual Core 1.7GHz - 2GB - 160GB - DVD±RW - Home Premium - 17" - Camera	\$ 750
Acer Aspire 5920-6919	Core2Duo 1.8GHz - 2GB - 250GB - DVD±RW - Home Premium - 15.4" - HDMI - Camera	\$ 750
Toshiba Sat U300-AY1	DualCore - 1.6GHz - 1GB - 160GB - DVD±RW - Home Premium - 13.3" Camera	\$ 800
Acer Extensa 5420-5232	TurionX2 1.9GHz - 2GB - 200GB - ATI 2400XT video - DVD±RW - Home Premium - 15.4" - 4hrs	\$ 849
Acer TravelMate 5720-6131	Core2Duo T7300 - 1.8GHz - 1GB - 120GB - DVD±RW - fingerprint - XP Pro - 14.1" - Camera	\$ 930
Acer Aspire 7720-6026	Core2Duo 1.5GHz - 2GB - 160GB - DVD±RW - Geforce 8400 Video - Home Premium - 15.4" - Camera	\$ 950
Asus F8SN-D1	Core2Duo 1.8GHz - 3GB - 250GB - DVD±RW - Geforce 9500 Video - Home Premium - 14" - Camera	\$ 1020
Asus M51SN-B1	Core2Duo 1.8GHz - 3GB - 250GB - DVD±RW - Geforce 9500 Video - H-Premium - 15.4" - Camera	\$ 1020

Notebook Carry Case / Wireless Notebook Mouse / Antec Notebook Cooler \$29

Logitech

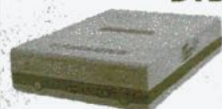


Logitech Communicate STX Webcam	\$ 39
Logitech ClearChat Headset	\$ 13
Logitech X-240 2.1 Speakers	\$ 39
Logitech 540 / Z4 Speakers	\$ 79
Logitech Z-2300 2.1 Speakers	\$ 109
Logitech G51 5.1 Speakers	\$ 149

Printer

Epson CX4450 AIO Inkjet	\$ 69
HP - 3050 / 3055 AIO Laserjet	\$ 169 / 289
Samsung ML-2010 Laser	\$ 69
Samsung CLP-300 Color Laser	\$ 189
Samsung SCX-4521F AIO	\$ 199

DVD



Verbatim DVD-R 50 / 100pos	\$ 18 / 33
Asus BLUE RAY / 12X DVD-RW	\$ 179
LG 20x LIGHTSCRIBE DVD-RW	\$ 35
LiteOn 20x USB Ext. DVD-RW	\$ 59
Samsung 20x DVD-RW	\$ 25
Samsung TruDirect Ext. DVD-RW	\$ 89

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Acer 17" - AL1716 - 1280x1024	\$ 159
BenQ 19" - G900 - 1280x1024	\$ 199
BenQ 20" - G2000W - 1680x1050	\$ 189
BenQ 22" - FP222W - 1680x1050	\$ 229
BenQ 24" - G2400W - 1920x1200	\$ 319
Samsung 19" - 943N - 1280x1024	\$ 219
Samsung 19" - 931BW - 1440x900	\$ 209
Samsung 22" - 2200WM - 1680x1050	\$ 259
Viewsonic 19" - VP950b - 1280x1024	\$ 329



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USB External HDD - 250GB / 500GB	\$ 79 / 119
Seagate 750GB FreeAgent Pro FireWire / USB / eSATA	\$ 219

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Photo Spree Winners!

Thanks to everyone that submitted pictures for the HUB: The Computer Paper Photo Spree contest. This time around, we're departing from tradition and asking you to send us your pictures without issuing a specific challenge.

Let's see what you've got!

Each of our winners will receive a copy of Adobe Photoshop Elements 6. Keep those pics coming!



Pink Popcorn Canopy

By Michael Iwasaki of North Vancouver, BC

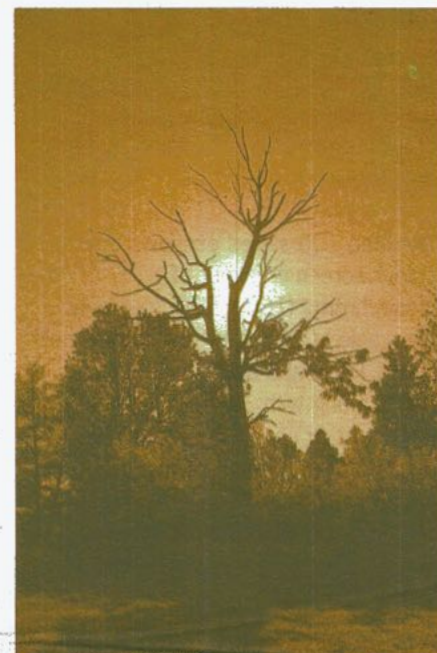
Spring really is in the air in this picture, submitted by Michael Iwasaki. The trunk of the foreground tree immediately grabs the eye and pulls it through the canopy, set in contrast with the bright sun in the upper left. The pic was shot with a tripod mounted Canon 5D through a Canon 17-40mm Lens, shot at 17mm, F11.0, ISO 50.



China Town

By Richard Johnson, Vancouver, BC

Richard Johnson's past as a documentary film maker is evidenced in this image; China Town gives a real sense of being there and capturing the moment in still. The girls carrying the flowers and dressed in full regalia pop in the scene thanks to soft focus in the fore and background. The image was shot using a Sony Cyber-shot F717.



Peaceful Afternoon

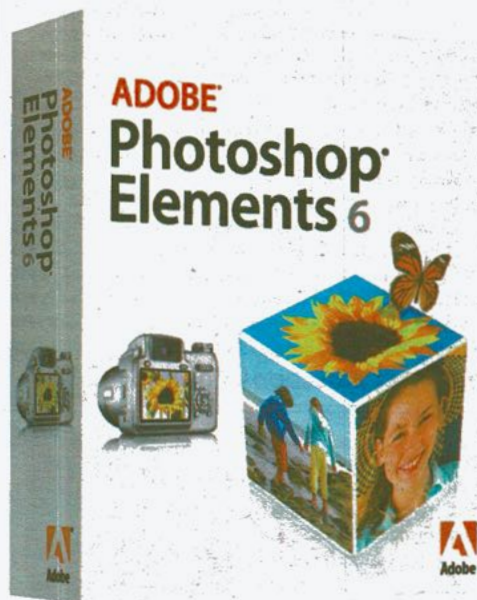
By Kevin Shi of North Vancouver, BC

Peaceful Afternoon sets a tree working to bring back its foliage after the winter chill in contrast with the relatively lush plant life behind it. It's a hopeful image and the warm orange cast gives a feeling of spring.

The challenge: Whatever the heck you want!

Win! Adobe Photoshop Elements 6

The top three pictures as judged by HUB: The Computer Paper will receive a copy of Adobe Photoshop Elements 6 for Windows or Mac. Adobe Photoshop Elements 6 is a budding digital darkroom dream and includes easy to follow tutorials and guidance for many digital photo manipulation tasks like removing blemishes or dust and scratches from pictures. Also in the box are enhanced image selection interfaces, improved panoramic image creation and a simple means for blending elements from multiple images in to one. Improved photo organization and tagging elements are also among the many improvements offered with this version. Adobe Photoshop Elements 6 is the result of Adobe listening to customer feedback to offer more of the powerful image manipulation functions that users want to see without complicating matters.



THE RULES: You must use a digital camera to capture the subject. Work can be submitted via email (contest@ppublishing.ca). Accompanying your photo should be the make and model of the camera you used, the names of any software you used to modify the image and, if possible, the f/stop and shutter speed you used to take the photo.

Submit your photographs, along with the information from the form below, by Aug 11, 2008. You can submit up to three photographs, all of which must be accompanied by a submission form. Entries must be submitted via email. Files should be no bigger than 2MB and no smaller than 500KB. One photo per email.

Prizes must be claimed by Sept 1, 2008. Winners must provide valid identification upon claiming prize. The prizes awarded are not transferable and cannot be redeemed for cash. To enter and to be eligible to win, persons must be residents of Canada, and not employees or be domiciled with an employee of Piccolo Publishing, its affiliate companies, or advertising or promotional agencies. The winners will be selected by HUB on Aug 22, 2008 from among all eligible entries received on or before contest close date. Winners will be contacted by telephone or email. In the event that they cannot be contacted within the first week following the contest, another entrant will be selected. All entries become the property of HUB and may be used in subsequent advertisements for the contest. All entries must be submitted by their artist and must be original work.

HUB's Photo Spree contest form. All submissions must contain this information. Send to contest@ppublishing.ca.

Deadline: August 11, 2008

Name:

Address:

E-Mail:

Phone Number:

Occupation/School:

Title of Entry:

Camera Used:

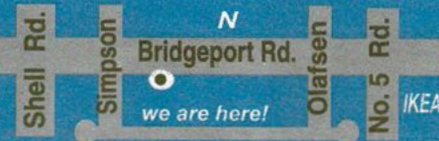
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LG 16x DVD Rom
ATX Mid Tower Case



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AM2 Dual Core 4600.....\$259
AM2 Dual Core 5000..\$279
AM2 Dual Core 5200..\$299

ASUS M2N-MX SE PLUS Motherboard
1GB DDR2 667Mhz RAM
Video Sound Lan on Board
160G SATA 7200rpm HDD
20xDVD-RW Dual Layer
ATX Mid Tower Case



Play Center

AM2 Dual Core 4800.....\$399

AM2 Dual Core 5200.....\$425
AM2 Dual Core 5600.....\$445
AM2 Dual Core 6400.....\$485
ASUS M2N-SLI Motherboard
1GB DDR2 667Mhz RAM
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250G SATA2 7200rpm HDD
20xDVD-RW Dual Layer
Black Mid Tower Case



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AM2 Dual Core 5600.....\$799
AM2 Dual Core 6400.....\$839
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Dual Core E2180 2.0G.....\$239

Asus P5VD2-VM SE MB
512MB DDR2 RAM
Video Sound Lan on Board
80GB 7200rpm HDD
LG 16x DVD
ATX Mid Tower Case



P5 Partner

Dual Core E2180 2.0G.....\$269
Dual Core E2200 2.2G.....\$279
Core2Duo E4600 2.2G.....\$319

ASUS P5GC-MX1333 Motherboard
1GB DDR2 667 RAM
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160GB SATA 7200rpm HDD
20x DVD Burner Dual Layer
ATX Mid Tower Case



P5 Commander

Core 2 Duo E4600 2.2G.....\$475
Core2Duo E6550 2.33G.....\$509
Core2Duo E6750 2.66G.....\$529
Core2Duo E8400 3.0G.....\$549

ASUS P5K SE Motherboard
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eVGA 8500GT 256M PCI-E
250G SATA2 HDD
20xDVD Burner Dual Layer
Cooler Master Tower Case



P5 Xtremor

Core2Duo E8400.....\$879
Core2Quad Q6600.....\$895
Core2Quad Q9300.....\$969

ASUS P5K Motherboard
2GB 800Mhz DDR2 RAM
nVidia 8800GT 512M PCI-E
500G SATA2 (32M) HDD
20xDVD Burner Dual Layer
Antec NINE HUNDRED Case
CoolerMaster 600W Power



Upgrade Special A

ECS GOAL3+ S754 MB with
Sempron 3000+ CPU and Fan

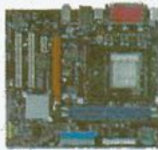


\$65

*While Quantity Last

Upgrade Special B

ECS GF6100M S754 MB with
Athlon64 3200+ CPU and Fan



\$75

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Upgrade Special C

AMD Dual Core 4600 2.4Ghz CPU
+ ASUS M2N-MX SE PLUS MB
+ Kingston 1GB DDR2 Memory



\$149

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Upgrade Special D

Intel Dual Core E2180 2.0G CPU
+ ASUS P5GC-MX/1333 MB
+ Kingston 1GB DDR2 Memory



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ASUS Eee PC 2G Surf

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- Shock-proof 4GB SSD
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ASUS F8SN-B1

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14" WXGA LCD
nVidia G9500M 512M
Wireless a/g/n Lan
Camera, Card Reader
Bluetooth, FingerPrint
Windows Vista Home Premium



ASUS W7S-B3B XP PRO

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120GB Hard Drive
1GB DDR2 RAM
NV G8400M Video
DVD+-RW Burner
13.3" WXGA

Wireless a/g/n Lan
Camera, Card Reader
Bluetooth, Firewire
Windows XP PRO preloaded



ASUS M51E-B1 XP PRO

Intel Core 2 Duo T8100 2.1G
160GB Hard Drive
2GB DDR2 RAM
Intel GMA X3100 Video
DVD+-RW Burner
15.4" WXGA

Wireless a/g/n Lan
Camera, Card Reader
Bluetooth, FingerPrint
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Game Gear pt. 2: Gaming Mice and Surfaces

Take aim with these high resolution rodents

Welcome to summer, and welcome also to the second installment of our look at gaming gear. Under the proverbial microscope last issue were keyboards — not just any keyboards, mind you, but keyboards designed with extra perks and conveniences that make gamers jump for joy. Ultimately, Microsoft's Recluse proved to be a superb unit for casual gamers, while Saitek's do-all Cyborg topped the charts for the hardcore crowd. For this issue, we trapped a few of today's hottest gaming mice and didn't let them go until we found out what they're all about.

So, how do gaming mice differ from good ol' run-of-the-mill general mice? In the lower dollar bracket, the only real difference is likely the word "gaming" on the packaging. But in the \$50-plus arena, where the heavyweights hang out and where the focus of this article lies, the distinctions can be quite palpable. This is the domain of adjustable weighting, customizable on-the-fly resolution switching, programmable buttons, game-friendly ergonomics, loaded software packages, and more.

Yet the most obvious physical difference, particularly now that wireless mice have become so darned popular, is that today's premier gaming mice are generally corded. While that may be a surprise and a

potential deterrent to those who've experienced the freedom of a cord-free environment, the top manufacturers tell us there's good reason for retaining that hardwired link.

Microsoft, for example, says its research proves gamers prefer the speed and responsiveness of a wired mouse and that they don't enjoy interrupting gaming sessions to change batteries. Preeminent game peripheral designer Razer elaborates further: "With the amount of wireless devices currently in use today, there are many sources that can cause interference and create noise that disrupts the wireless signals a mouse uses. This may not be noticeable in day-to-day office tasks, but our validation tests have proven that in the heat of a gun fight or a serious RTS skirmish, not having full control of your mouse is very frustrating. Our engineers are watching and experimenting with wireless technologies... but we will not release such a product until we feel it can deal with the busy wireless households and LAN situations gamers face."

But while we commend high-end mice-makers for sticking to their guns in the corded versus cordless debate, the truth is that many gamers do quite nicely with the latter. This writer, for instance, has survived many a deathmatch during the past few years with his trusty, yet wireless, Logitech MX1000 Laser Mouse.

Another similarity between the top contenders is their method of tracking. Today, entry-level and midrange mice utilize "optical" sensors and tiny LEDs that capture images hundreds or thousands of times every second. High-end mice, on the other hand, substitute those LEDs with laser-produced light.

Why? Logitech tells us that "the superiority of a laser mouse comes from the highly concentrated light it produces. The shorter wavelength of laser light illuminates surfaces in far greater detail, revealing features that don't show up in LED light. Compared to optical, a laser engine sees much greater surface detail, which gives laser mice greater accuracy and allows them to track better on more kinds of surfaces."

We'll look at five mice in total. And for dessert, we'll take a quick gander at what might be considered a gaming mouse's best buddy, the gaming surface. Like mouse pads to the next power, gaming surfaces purportedly offer better tracking and more fluid movement than raw desktops.

Let's begin with the mice, from worst to first.

Lachesis High Precision Laser Gaming Mouse

Razer
www.razerzone.com
Street Price: \$90

Hotly anticipated by an eager gaming public familiar with the respected Razer name, the Lachesis certainly talks a good game. It looks way cool when plugged in — its blue backlit scroll wheel and slowly pulsating logo glowing in the dark and its sleek, symmetrical shape keep both righties and lefties in the game. And its nine programmable buttons are certainly the most



Ikari Laser Mouse

of any mouse in this roundup.

Moreover, the Lachesis raises the bar in the "my-DPI-is-bigger-than-your-DPI" department. DPI (dots per inch) or, more correctly, CPI (counts per inch) are interchangeable terms alluding to the sensitivity of a mouse. The greater the sensitivity, the more steps a mouse will report when it moves one inch. Essentially, a mouse with high sensitivity DPI / CPI will move the cursor or character much faster than a mouse with a low number. Just as importantly, players can be that much more precise — a key capability when trying to pick off a distant enemy with a sniper rifle.

The Lachesis maxes out at an incredible 4,000 CPI, a notably higher figure than the 2,000 and 3,200 DPI maximum of other gaming mice. But does that really mean anything in the real world? In our experience, no. Even 3,200 CPI is overkill. Anything greater than 2,000 causes the cursor to move so quickly that it's barely controllable.

However, it's important to note that the Lachesis, like every mouse in our roundup, features on-the-fly, scalable DPI. Indeed, the Lachesis offers five default settings (500, 1,000, 1,500, 2,000, and 4,000), though we do wish there were some visual indication on the mouse to display which setting is currently active.

But the most disconcerting bit of news is that the Lachesis was the least comfortable mouse of any we auditioned. Though it's the only ambidextrous mouse in the roundup and therefore the only model left-handed folk can even consider, it simply doesn't fit the hand well. It's surprisingly skinny, with a ridge

Lachesis High Precision Laser Gaming Mouse



Microsoft SideWinder Performance Gaming Mouse

circumnavigating its sides that could conceivably cause irritation after a few hours of gaming. It's curiously lightweight too — so much so in fact that we bet most players will crave something more substantial. Ultimately, given its comparatively high price (and given that it doesn't offer adjustable weighting or some of the other perks of today's most expensive models) we cannot fully recommend it.

Ikari Laser Mouse
SteelSeries
www.steelseries.com
Street Price: \$90

Apart from the Lachesis, which comes up a bit short in several areas, all the other mice in this roundup hit the finish line within sight of one another. Hailing from veteran European game peripheral designer Steelseries, the Ikari, for example, is a fine example of mousedom even though it narrowly misses our top three. It's comfortably lightweight and sports a rounded, low-slung profile that feels great in small- and medium-sized hands. We did have some trouble lifting the Ikari from the desktop. Not because it's too heavy — it's actually extremely lightweight — but because it's tough to get a good grip when trying to do so.

The Ikari features five programmable buttons and on-the-fly DPI switching via an easily accessible top-mounted control. This cannot be stressed enough — if you're a serious gamer and find yourself in a variety of different situations, on-the-fly DPI switching is a wonderful tool.

Furthermore, users have full customization of the DPI — all the way from one to 3,200, in single unit increments — without ever resorting to software. A nifty LCD on the underside displays the DPI setting as you change it, and a backlit indicator on the side of the mouse shows your current setting. Sadly, only two settings are available at any one time.

Though the Ikari is not weight-adjustable and is moderately troublesome when being lifted, it's otherwise an impressive unit that's perhaps a bit too pricey for its own good.

SideWinder Performance Gaming Mouse System
Microsoft
www.microsoft.com/hardware/gaming
Street Price: \$80

It is admittedly a subjective call to relegate the boldest, most thoroughly-equipped mouse on the market to a third-place finish, but we had just enough quibbles to do it — though we can certainly see how some players could rate the SideWinder higher.

Unlike the Microsoft Habu (below), the SideWinder is not co-developed by Razer. This is Microsoft all the way, and Bill and the boys must have had their imagination on overdrive for this one. The SideWinder does it all — on-the-fly DPI switching to a maximum of 2,000, adjustable weighting (by opening a little cartridge within the mouse and plopping tiny 10g weights into it), adjustable feet (three sets in all, for different surfaces) and onboard macro recording. An LCD on the top displays your current DPI setting, and the box containing the weights doubles as a cord anchor — keeping the cable directed just where you want it. What a great idea.


The SideWinder feels good when you first grip it. But it's a big

unit — really big — and if your hands aren't abnormally large, the scroll wheel feels distant and too slippery to properly manipulate. Similarly, the dual side-mounted thumb buttons feel small and a bit clumsy.

Though the SideWinder boasts a killer array of amenities, its ergonomics definitely won't suit everyone.

Habu Laser Gaming Mouse
Microsoft
www.microsoft.com/hardware/gaming
Street Price: \$60

Microsoft's Habu, co-designed by Razer, makers of the Lachesis



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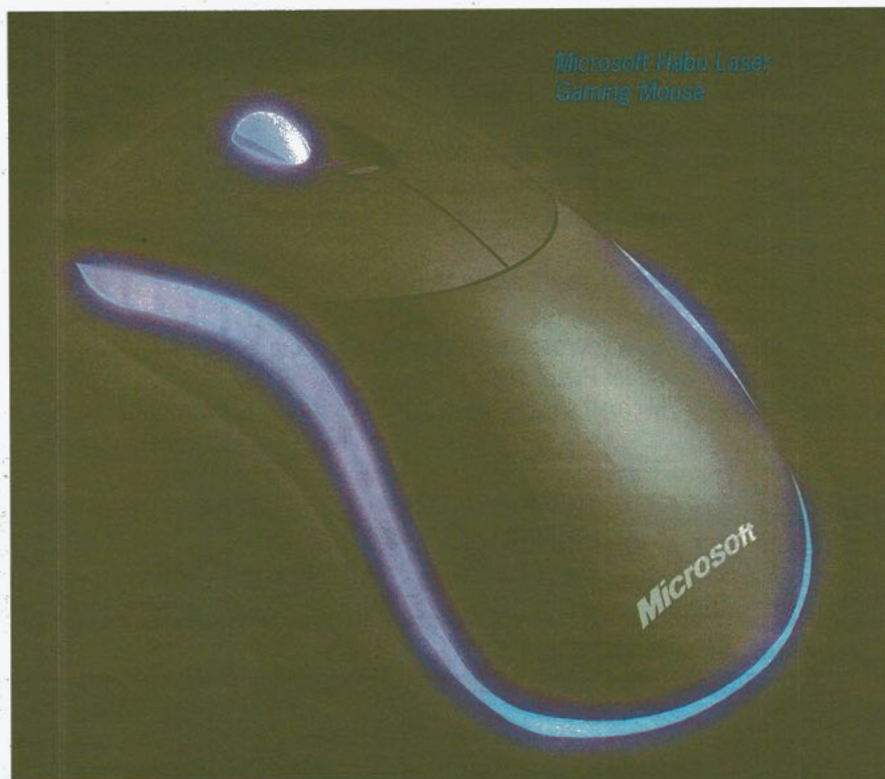
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mentioned previously, doesn't sport the features of the Sidewinder or the G9. Yet it does what it's capable of doing with such aplomb, feels so rock solid while doing it and is so comparatively affordable that it must be rewarded with a place in our top two.

Ridiculously comfortable whether on

the desk or when being lifted from it, the Habu looks good too with a Razer-inspired blue backlit scroll wheel and even more blue lighting winding its way around the edges of the housing. Arguably the Habu's most impressive aspect is the feel of its buttons, particularly the two central index and

middle-finger buttons, both of which deliver a level of response and build quality that's superior to that of any of the other models. That you can remove the side panel and its two button-tops and replace it with a slightly re-jigged secondary panel is a way cool bonus.

The scroll wheel is easy to reach and firm in its movement, and the two mini-buttons just behind it allow you to instantly adjust the DPI between 400, 800, 1,600, and 2,000. Is it a big deal that the Habu tops out at 2,000? We don't think so, and we'd heartily recommend this mouse to those who don't need esoteric perks such as adjustable weighting.

G9 Laser Mouse

Logitech

Street Price: \$90

Like Microsoft's SideWinder, the Logitech G9 is absolutely loaded with goodies — on-the-fly DPI switching (four settings available at any one time, from 200 to 3,200 DPI) with a series of LEDs to show what's currently selected, adjustable weighting via a series of four- and seven-gram weights that are inserted via a trap door in the rear, and a nifty little tool that allows you to switch the mode of the scroll wheel from click-to-click to frictionless.

More than that, the G9 offers not one but two grips. And by "grips," we mean the entire mouse housing. One grip is wide and rounded, the other is slim, and they're each directed at a certain type of mouser. Swapping grips takes all of ten seconds, and we think it's a pretty neat idea.

The G9 is not the prettiest mouse in the bunch. Nor is it the biggest — even with the wide grip attached — so gamers with massive mitts may want to steer clear. But it feels good even after hours of use, lifts easily from the desktop, and slides smoothly on its large Teflon feet. Though several of our

test mice could have made it to the top of the list, we chose the G9 simply because we had no negative issues with it.

On the surface

Destructor Professional Gaming Mat
Razer

www.razerzone.com

Street Price: \$40

Certainly the nicest mouse pad we've ever used, Razer's Destructor comes with a protective, zippered case that looks and feels as sophisticated as some laptop cases we've seen and undoubtedly contributes extensively to the steep cost. Nevertheless, the Destructor eliminates the flaws of tables and desks, looks like black granite, and purportedly coaxes 25% better tracking from laser mice. We can't vouch for that figure, but we can tell you that we encountered nary a skip or hitch during all our time testing it. Considerably bigger than a traditional mouse pad at 34.5cm x 27.2cm and obviously pricier, the Destructor is a slick option for gamers with excess money to burn.

QcK Heavy Pro Gaming Mousepad
SteelSeries

www.steelseries.com

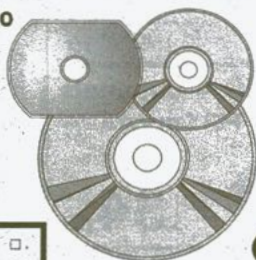
Street Price: \$20

At 44.5cm x 39.5cm, the QcK is an absolute monster. Thankfully, it's not nearly as rigid as the Destructor, so it rolls up for easy transportation. And it uncurls almost immediately too. Regardless, the QcK feels like a traditional foam mouse pad; we prefer the harder, seemingly more durable surface texture and material of the Destructor. In the end, the QcK makes sense only if you have oodles of space and a hankering for those mouse pad thingies that optical and laser mice were supposed to have made obsolete.

By Gord Goble

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By Andrew Moore-Crispin

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Not Music To Our Ears

By Mia Evans

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GTA IV Causes Rage Among Gamers

By Dorian Nicholson

Grand Theft Auto IV, perhaps the most anticipated video game of the year and likely to be the most successful, is causing widespread anger among gamers. The game is now infuriating some of its owners...

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New Products:

Bold New BlackBerry

By Harry Powell

In the ever-more-competitive mobile phone landscape, it would seem that

BlackBerry has a daily cache of new product to unveil. Introducing Research In Motion's BlackBerry Bold...

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Zune Arrives

By Harry Powell

Microsoft recently announced that starting June 13, 2008, 4GB, 8GB and 80GB Zune digital music players will arrive on Canadian shores and in Canadian stores. In anticipation of the arrival of the players, Canadians can visit www.zune.ca...

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The New and Improved iMac

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Apple lovers better sit down...

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Samsung's CLP 660 and CLX-6200 Printer Series

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Compiled by Dorian Nicholson



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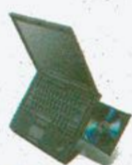
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Building the Ultimate Game PC pt. 2

Assembling the beast



Last month, we extolled the virtues of assembling your own PC from component parts. We alluded to the fact that it's not that difficult. That with a little research, all the pieces will fit together into a nice, neat, powerful and top performing PC. While it's not time to eat our words just yet, the build out has proven itself to be a little less simple than originally anticipated. That's code for I've been swearing quite a lot in the process of building the behemoth. All things considered though, it has been an enjoyable experience and not overly difficult.

Step 1: Unpacking the goods

The sheer number of boxes we've acquired is nothing short of amazing. From the massive and well padded

box for the Thermaltake Armor+ case to the way larger than you'd think necessary boxes for the two ASUS EN9800GTX video cards, we feel like a study in consumer waste generation. Our boardroom table is littered with anti-static packaging and sundry blister packs, discarded twist ties, extra instruction booklets in French, Spanish and in some cases, Chinese, German, Japanese and other languages. There's also a bunch of styrofoam packing peanuts, bubble wrap, high density polyethylene carriers, a little bit of recyclable packing paper and more.

As an aside to the PC building process, I think it's high time that companies who do a lot of mailing of sensitive equipment take a good long look at how they go about packaging. A lot of this waste could be diverted by opting for water soluble cornstarch packing peanuts, recyclable plastic air blisters or recyclable packing paper. But I digress.

Sitting before us (on a section of the table designated as a work area and hence, not cluttered with consumer detritus) sits the ASUS Striker II Extreme motherboard, the DuOrb cooler, the Corsair RAM (with a higher than normal profile and it's own dedicated cooling fan array... more on that later), the LG Blu ray read / writer, the Intel Core 2 Duo 3.16GHz CPU and assorted other component parts.

Step 2: RTM

First real step in to building a PC is to read the manual. It's not fun, but it is necessary. Pay special attention to anything that says "ATTENTION!" or "Read this before you even think about starting" or "CAUTION" or similar. They don't just say that stuff for fun; there really is some pretty pertinent information to be found here and

you'd do well to give it at least a cursive glance. We'll read more in-depth as we continue along the build process. Right now, we're just trying to get the key info and step-by-step plan of attack.

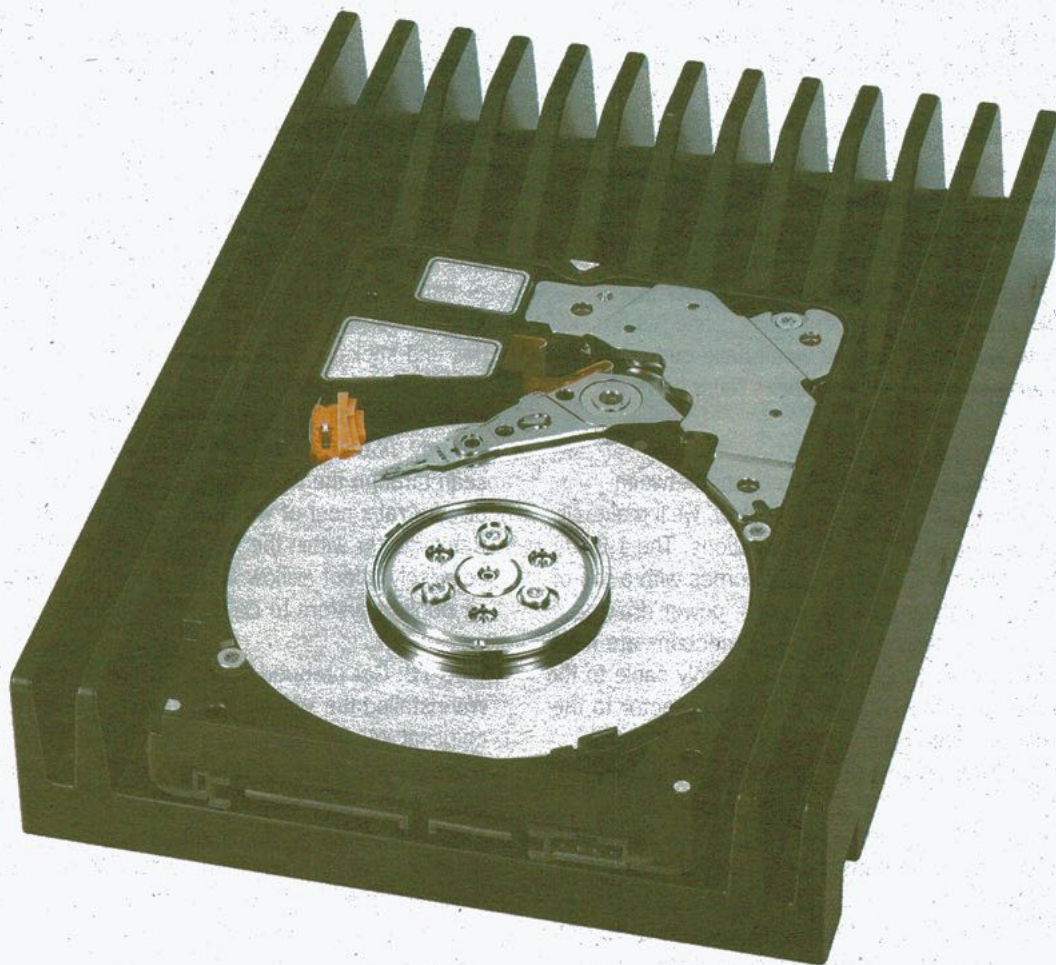
Step 3: Stay grounded

Computer components are pretty amazing. The 3.16GHz, 6MB L2 Cache and 1333MHz bus Intel Core 2 Duo Desktop Processor we're using (E8500, \$300, www.intel.ca), for example, is built on an incredible 45nm process. It incorporates in the order of 410 million transistors into an area of 110mm square. It's etched using a laser process in a static-free clean room free of any dust particles at all. Generally, this stuff is of no concern for the end user of a PC. However, think about the nano scale of this processor (and of the other sundry components that make up a PC) and then think about what would happen if you zapped one of them with static electricity. Short answer: it wouldn't be good. In our long-winded way, what we're saying is grab a grounding strap or a grounding pad from your friendly neighbourhood PC retailer or, at the very least, be ritualistic about touching the power supply or chassis of your PC to ground yourself before you touch anything else.

Step 4: We Have the Power

High-end PC cases like our Thermaltake Armor+ Full-Tower ATX Case (VH6000BWS, \$280, www.thermaltake.com) — perhaps counterintuitively — don't include a power supply unit (PSU). The logic here is that the PC tweeker wants to be able to choose from the wealth of PSU options available and would probably pull the stock PSU out of the case and





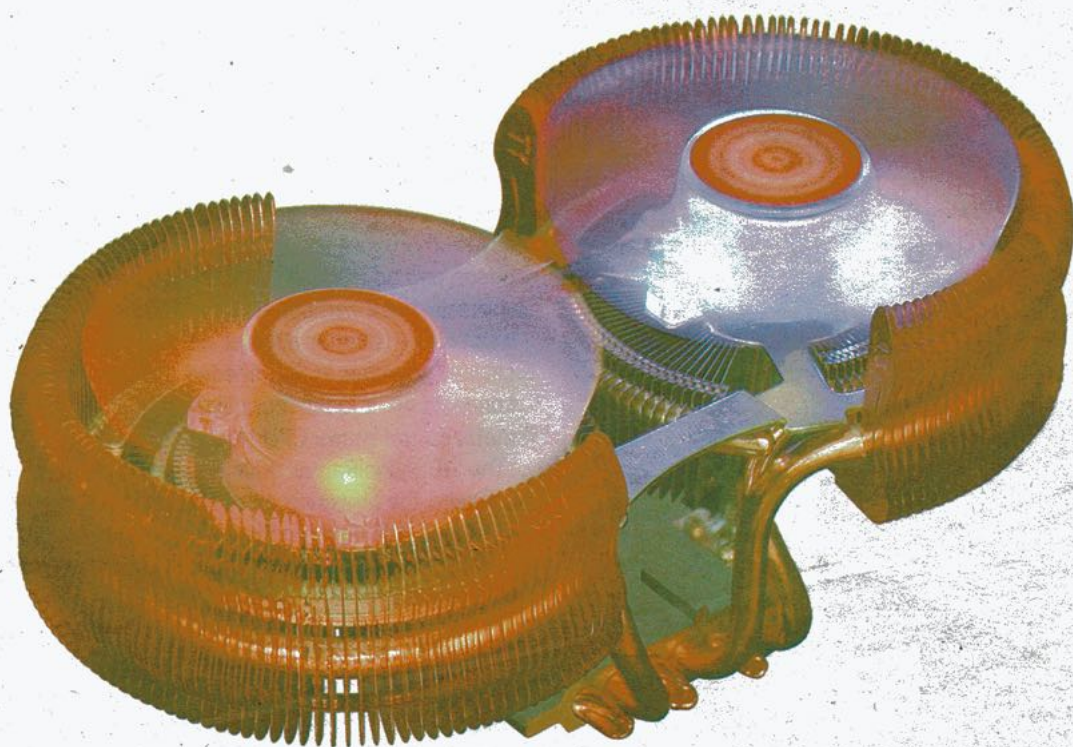
replace it with a better one anyway.

Installing the PSU is simple; the power cord receptacle and power switch part point out and the cables point in. Four screws later and it's mission accomplished. The Thermaltake ToughPower 1000-Watt (\$365, www.thermaltake.com) that we have for our build comes with a silicon end cap to ensure there is no noise created from vibration between the chassis and the PSU. This makes it somewhat more difficult to install as it's a tight fit to begin with.

Step 5: Making the case

Before we install anything else, it seems like a good idea to install optical drives and hard drives. Repeated jostling and moving of the case in later steps suggests it probably wasn't such a great idea, however.

The Armor+ case features tool-less modification and has ample room to work within. On the front of the case, a series of grilles run top to bottom. Opening these grilles unlocks them and gives easy access to



the drive bay that lays behind. Sliding in the Internal LG Super Multi Blue Blu-ray Disc Rewriter and HD DVD-ROM (LG GGW-H20L, \$299, www.lge.ca) is easy and it clicks home securely. There are screw mount points too, but the easy release locking mechanism of the Armor+ case seems to negate the need for these. We'll put them in anyway. Better safe than sorry.

The Western Digital VelociRaptor HDD (WD3000GLFS, ~\$300, www.westerndigital.com) was the last component to get shipped out for the Ultimate Game PC and the build began in earnest before it arrived. However, it should slot it in to one of the numerous drive bays that run down the front of the case or in to one of the four bottom-mounted quick access rack style drive bays easily so we're not too worried about it just yet.

Step 6: pre-fab

The instructions of the ASUS Striker II Extreme motherboard (\$415, ca.asus.com) suggest fitting all the core components to the motherboard before bolting the board into the case. Some of this stuff gets a bit fiddly and in some cases, requires force be carefully (operative word) meted out, such as with locking the processor in to the appropriate slot on the mobo, clicking the RAM home in the RAM slots and affixing the cooling fan to the board, seated on the processor. This is much better done with the motherboard on a flat surface than with the motherboard mounted to nine posts — posts that could be potential pressure points.

CPU: Mounting the CPU is a simple affair. It has notches cut into it that correspond with slots in the processor mount. Place it in, close the pressure connector and click it home and you're done.

CPU cooler: Here's where things become a little more complicated. The DuOrb CPU cooler (\$70, www.thermaltake.com) comes with mounting hardware and the mobo has holes that are ready to accept said hardware. These brackets will be used to pressure mount the cooling fan array to the CPU with a little thermal compound in between to create as close to a perfect thermal transfer from CPU to cooler as possible. The CPU fan's power cable has to be routed to the appropriate (labelled) port on the motherboard. Not too difficult, all told.

RAM: This would normally be one of the simpler steps. Open the pinch points on the colour-coded RAM slots, click the RAM stick home and that's all there is to it. However, since the DuOrb cooler has what is supposed to be a RAM cooling fan and given that the RAM we're using (Corsair XMS3 DHX TWIN3X2048-1800C7DF 2GB DDR3 (2X1GB), \$350, www.corsair.com) has a higher than usual profile owing to cooling fins that jut above the normal RAM profile. It even has its own cooling fan array. This becomes the first in a series of small but somewhat irritating problems. The RAM cooling fan of the DuOrb cooler doesn't afford enough clearance for our taller than normal RAM to fit into the RAM slots.

CPU cooler: Mounting brackets and the cooler itself turned 90 degrees, re-greased with thermal compound and locked in: It's now covering one of the PCIe slots that we may need for installing the sundry cards (video and audio) that we still have to install but we'll cross that bridge when we get to it.

RAM: Installed this time without issue.

Motherboard: Before attaching the video cards that will be the muscle powering our gaming rig, it's time to install the mobo into the case. The Thermaltake Armor+ case (and indeed, most cases that are

designed to fit several different motherboard configurations from ATX to Micro ATX) has screw holes on the chassis that are labelled for each different mobo configuration. We're using the nine holes marked A (for full ATX). The brass stand mounts go in without issue, the mounting holes in the motherboard line up and we screw the thing down — tight but not excessively so; about 1/4 turn past hand tight. There are a few fiddly moments trying to get some of the corner screws in but nothing too frustrating.

Step 7: Muscle in the muscle

With the motherboard mounted and the core components in place, we move on to installing the video cards and sound card. Here, we're confronted with another problem. The DuOrb cooler, instead of covering the RAM slots, now covers one of the PCIe slots. Thanks to an on-board cooling system for the ASUS EN9800GTX cards (\$350, ca.asus.com), the video cards themselves are double wide; they take up two of the rear-mounted PCI ports on the back of the Armor+ case each. They also cover up several of the connection ports on the motherboard, including the six serial ATA connection points for hard drives and optical drives. The cables will still fit without issue under the video cards, but it means a little pre-planning, making connections before the video cards are seated. Tool-less access for removing the PCI slot covers turns out to be welcome here as we can remove a few extra PCI covers and then easily replace them later, after everything is in place. This is useful because cards never seem to line up with the PCI slots the way you think they will (or at least, the way we think they will).

The ASUS Striker II Extreme motherboard (\$415, ca.asus.com) comes with its own soundcard. It fits neatly in to a PCI Express slot. Originally, we opted not to use the bundled audio riser solution, choosing a dedicated solution from Creative, the Sound Blaster X-

Fi XtremeGamer Fatal1ty Professional Series (\$170, www.creative.com). Much to our chagrin, the slot that is being blocked by the DuOrb CPU cooler is the one we'd need to mount the Creative sound card. While it would undoubtedly offer us better performance than the stock sound card, we're faced with a difficult decision. Either we source new RAM, choose a different CPU fan or forego the add-on sound card. We're opting to do the latter as we're excited to get around to testing the gaming rig out rather than searching for new component parts... and it's not like we'll have no sound, we just won't have quite such high-fidelity sound. Alas. Sacrifices must be made.

Step 8: Making the connection

We already have the SATA connections between motherboard and drives in place. Now, we'll make all the appropriate power point connections. The 1,000 watt MaxPower Thermaltake PSU comes with a ton of extra plug in cables for extra drives, power drawing cards and so on. All the standard connections are hard wired. We connect the main power supply cable to the motherboard, attach the appropriate connector to the video cards, plug in the drives and while we're not ready to power up just yet, we're certainly getting close.

With every PC case comes a bundle of twisted wires with in some cases cryptic labels. "RRT SW" and "PW SW" are pretty simple to deduce (reset and power switches respectively), others aren't. These wires don't lock neatly in to place with a like-size, shape and pin-configuration connector point. Rather, they attach to a small grid of connecting pins whose individual purposes are written on the printed circuit board (PCB) of the mobo. They don't use quite the same naming convention as the cables, but it's not tough to figure out.

Step 9: Cleaning up

Assuming the detritus packaging, twist ties et al has already been cleared up (in our case, it hadn't), it's time to clean up the inside of the case. There are a lot of wires snaking around the inside. While the power cabling that comes with the Thermaltake case is bundled into much neater packages and wrapped with a black mesh sleeve, there's still plenty of it. Left as is, it makes the PC look like a mess. Some PC cases — especially those with a look-in window like our Armor+ case — will include a variety of zip ties, cable ties and stick-on cable tunnels to keep the mess to a minimum. A few strategically placed ties and ratcheting cable clamps and the inside of our PC looks a purdy as the outside... at least, the part that can be seen through the window does. Behind the PSU, it's a bit of a rat's nest of wiring. Out of sight, out of mind. Cable clutter within the main body of the PC can adversely affect airflow and as such, the ability of an air cooling system to do its job effectively.

Step 10: Get prepped

We installed the swiveling, piano black base to our colossal 24" LG HD monitor (LG L246WH-BH, \$499, www.lge.ca), plugged the CPU's PSU in to the wall, hooked up the various cables to the Logitech G51 Surround Sound Speaker System (\$200, www.logitech.com), hooked up the Microsoft Reclusa keyboard and SideWinder mouse (\$75 and \$80, www.microsoft.com/hardware) and powered up.

We'll be running Windows Vista Ultimate Edition (\$330, www.microsoft.com/windowsvista) as newer games are increasingly being developed to run optimized on the OS (by means fair or foul, as one recent reader letter wonders).

Some of the hardware — most notably (and appropriately) the video card comes with gaming software. We'll be loading it up, along with critically acclaimed titles Crysis (\$60, EA Games, www.ea.com/crysis), Assassin's Creed (\$60, Ubisoft, www.assassinscreed.com), Gears of War (\$60, Microsoft Game Studios, www.gearsofwar.com) and a few others.

Step 11: Plug and pray

All the internal connections made, drives seated, cards in place and ducks (at least theoretically) in a row, it's time to plug it all in, power it up and see what happens.

Hitting the top-mounted power switch of the case, we're rewarded with fans spinning up, lights coming on and the LCD poster display that is designed to alert to any motherboard issues displaying "CPU INIT." No beeps and no POST (Power On Self Test) though.

I initially theorized this to be a video card problem; I wasn't sure whether each of the two video cards, chained together in SLI, needed their own power connections. It looks more likely that it's either the motherboard or the CPU though.

The WD VelociRaptor drive has yet to show up and officially, the powering on phase of the Ultimate Game PC is not until next month's issue. In other words, I've got a bit of time to get to the bottom of this problem. More on that later.

By Andrew Moore-Crispin



Next month: Plug in, power up, game on: We'll be booting up the Ultimate Game PC for the first time, loading up software for some extended play testing. We'll run some benchmarks and report the results too.

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Motherboard

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\$415 ca.asus.com

CPU

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\$300 www.intel.ca

Cooling

Thermaltake DuOrb
\$70 www.thermaltake.com

RAM

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\$350 www.corsair.com

Graphics card

ASUS EN9800GTX x2
\$350 x 2 www.nvidia.com

Speakers

Logitech G51 Surround Sound Speaker System
\$200 www.logitech.com

Monitor

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\$500 www.lge.ca

Power supply

Thermaltake ToughPower 1000-Watt
\$365 www.thermaltake.com

Keyboard

Microsoft Reclusa
\$75 www.microsoft.com/hardware/gaming

Mouse

Microsoft SideWinder
\$80 www.microsoft.com/hardware/gaming

OS

Microsoft Windows Vista Ultimate
\$330 www.microsoft.com/windowsvista

Games

Ubisoft's Assassin's Creed
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Gears of War
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The Ultimate Game PC includes:



Power Pellets: To the Podium

Video games step into the Olympic spotlight



A video game tournament will be an official Welcome Event of the Beijing 2008 Olympic Games this summer. Is the world ready for virtual and physical sport to share the same stage?

The Beijing 2008 Olympic Games are going to be remembered for a lot of things, many of them negative. There have been protests during the ceremonial torch run by Students for a Free Tibet. Many teams have expressed concern about the effects that China's air pollution will have on their athletes' health and performance. And some politicians and activist organizations have called for an outright boycott of the event.

However, the world's gaming community may end up having more flattering memories of Beijing 2008 thanks to the fact that, for the first time in the history of the world's most prestigious celebration of sport, a video game competition is being included as an official part of the proceedings.

GGL Global Gaming, an international social community for competitive gamers, has been working with the Chinese government for more than two years to create the 2008 Digital Games, a four-day pre-Olympic competition with the status of "Official Welcome Event" that will see not only professional and amateur players competing for medals in a dozen popular games, but also Olympic athletes and global celebrities trying their hands at a variety of virtual sports (games being featured at the event hadn't been announced at press time).

Why now?

In a word, China. Countries hosting the Games are encouraged to showcase aspects of their culture that are unique in the world and, as Ted Owen, CEO and Chairman of GGL Global Gaming points out, "China is the only country to officially recognize gaming as a national sport," which makes it the ideal nation to introduce video games to the Olympics.

And Owen does indeed believe that the 2008 Digital Games are just an introduction, not just a one-off stunt. His goal is to make video games a permanent facet of the Olympics, perhaps even as an official event.

"We've already talked to the International Olympic

Committee at the 30,000 feet level," he says, adding that he was encouraged by the direction the discussion went. A key consideration for any activity with aspirations of becoming an official part of the world's most international sporting event is its ubiquity within countries and cultures across the globe, and video games are undeniably among the most pervasive leisure activities in the world.

"We're going to bring 76 countries together at the 2008 Digital Games," said Owen.

"With all due respect, there are many existing events that don't do this. Curling, for example, isn't played in Jamaica."

Still, video games will face a long uphill battle in their bid to become an official Olympic event.

First off, competitive gamers would need to settle upon a single organization that has the

power to act as an international governing body for video games as a sport — and be recognized as such by the International Olympic Committee. There would be plenty of existing organizations aside from GGL Global Gaming that would likely vie for this status, including, among others, the World Cyber Games, Major League Gaming, and The World Series of Video Games.

Then a country hosting an upcoming Olympic Games would need to propose video games as an official demonstration sport. It's hard to imagine any country — even China — taking such a bold step.

Also, what would the events be? Unlike individual sports, video games are manifold, and none yet are so enduring and universal that they could be conceivably considered timeless tests of a player's skill at gaming. Would the proposal be that the games played from one Olympics to the next change according to the titles currently in vogue?

And that's to say nothing of the debate over whether video games ought to be considered a sport. No matter how far they have come, games are still entertainment created and owned by industry. Should Parker Bros.' Monopoly board game be considered for Olympic status as well?

Still, video games are a fiercely competitive activity, and one that requires an exceptional physical adroitness of fingers and thumbs (appreciated by those who play, if no one else).

And that's why, when the 2008 Digital Games are telecast this August — Owen confirmed that CCTV, China's biggest television network, will be broadcasting them live, and that GGL is in the final stages of negotiations to telecast the event on prominent networks in the United States and Europe as well — I will be there watching with no small amount of interest. "It's a seminal moment in the culture of gaming," says Owen. Indeed, it is hard to deny him that.

By Chad Sapieha

Gateway P-6860FX

www.gateway.com \$1,349.99

Need to game on the go but can't muster up enough scratch for a Voodoo Envy? Gateway's new 17-inch P-

6860FX desktop replacement gaming laptop might be the answer.

Thanks to an nVidia GeForce Go 8800M GTS with 512MB of GDDR3 video memory and 4GB of DDR2 667 MHz dual channel RAM, this budget gaming notebook demonstrated enough horsepower to run every game we threw at it — even Crysis, a notorious hardware-humbling shooter (though we did have to run it using medium graphics settings, middling resolution, and on DirectX 9).

It staggered a little during the most action packed sequences of a benchmark test using the resource intensive strategy game World in Conflict, but we were able to coax out a solid 30 frames per second with mostly medium visual settings. Other recent games, including Activision's Call of Duty 4 and BioShock, were essentially stutter-free running at the highest visual settings.

Simply put, it plays games good.

So why the rock-bottom price tag? A weak (relative to other portable gaming rigs) Intel T5550 Core 2 Duo 1.83GHz processor, is one reason. Plus, its screen, while big and bright, tops out at a resolution of 1440 x 900, whereas higher-end gaming laptops typically hit a full 1920 x 1200.

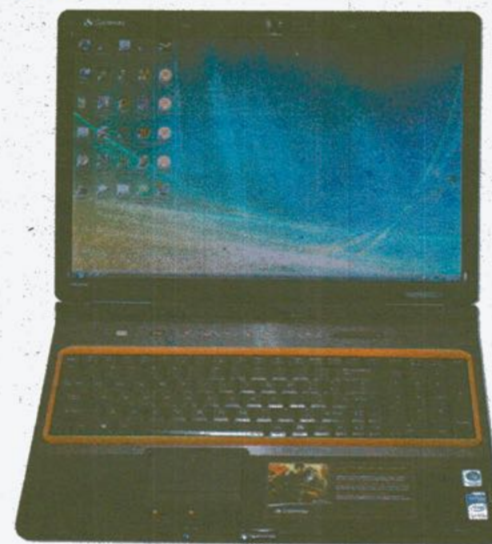
Also, it's easily smudged, glossy black shell lacks the elegance and sophistication of a Voodoo laptop and doesn't offer up the same sort of geeky bedazzlers as an Alienware book — it hasn't a glowing keyboard, customizable lighting effects, or gills, but instead just a few copper coloured accents and a smattering of lit buttons.

Still, it delivers incredible bang for your buck — especially considering all of its not-necessarily-for-gaming extras, including a capacious 320GB hard drive, HDMI output, dual-layer DVD burner with LabelFlash, Wireless N networking and Bluetooth.

So, unless you need to see every last wrinkle and pore on your grunts' faces in Gears of War (and have the thousands of dollars extra required for a laptop capable of generating that sort of detail), you are hereby advised to check out the P-6860FX.

By Chad Sapieha

Gateway P-6860FX



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The Last Byte

Mac clones? Not likely



As soon as Apple switched to Intel processors, it was inevitable that more of the curious would try to figure out how to run the Mac OS on non-Apple hardware. After all, with most of the hardware components now common to Mac and PC and the fact that Mac hardware can run Windows, why should the reverse not be true?

So that OSX won't have to dance with just any old PC creep, Apple has implemented software, firmware and legal chastity belts, but that hasn't stopped people from trying to circumvent them — and succeeding. This Hackintosh activity has been going on for years so it may be just coincidental that in the last month I've received a cluster of news releases or reports about successful ports of OSX to non-Mac hardware, including one to the ASUS EeePC and a company called Psystar announcing its Open Computer that will run Windows, Linux or Mac OS. The clone factor isn't anything new to Apple. In fact, it may have had as much to do with the design envelope of the original Macintosh as the graphical interface and mouse. Apple's fortunes with the Apple II would have risen much higher were it not for the Apple II knock-off industry that swelled around the platform. Apple successfully sued a couple of them for copyright infringement (and in the process established for the first time in the US that operating systems, ROMs and software could be copyrighted). However, the damage to Apple's bottom line had been done. It's a lesson not learned by IBM, which saw its creation, the IBM-PC, devolve into the generic PC. The IBM brand became one of many, and not necessarily the dominant or most influential one. Of course that gave rise to the golden age of personal computing we witnessed in the last two decades of the past century. But that's another story...

Amid the folklore surrounding the Mac is a story of Steve Jobs directing the developers to hide a "stolen from Apple" message deep within the Macintosh ROM code, which could be revealed should any cloner try to rip off the ROM design and

claim it as their own original work. In the mid-90s Apple officially sanctioned a Mac clone industry by licensing ROMs and the operating system to third party developers. However that programme ended when Steve Jobs returned to Apple.

Will Apple once again officially license its code to hardware vendors? In the tech business, we know to never say never, but I don't see it happening. Is there a good reason to do so from Apple's position? There's the inevitable argument that it would drive up OSX's market share. There are plenty of PC hardware companies that could build a quality box and sell it for a few dollars less. However Apple is managing to snatch around four per cent of the global personal computer market all by itself. Growth of the OS side through third-party involvement would also mean competition for Apple's hardware cash cow.

There's also the issue of quality control and its impact on user experience. Apple needs to choreograph the work of relatively few hardware and software suppliers, so the chances of big and little things undermining the user experience is smaller. Compare that to Windows, which has to run on systems made by quality manufacturers as well as those cooked up in basements by hobbyists with varying levels of competence. When something doesn't work, the gnarly finger of blame gets pointed at innocent and guilty alike. Apple's chain of blame is easier to manage. Then, there's that thing called caché. Macs have it. A Mac clone has anti-caché. On the PC side, it doesn't really matter because the major players all have skeletons of cloners in their closets, and the PC industry grew so big because of clones. Besides, "PC clone" itself is an anachronistic term — standardized PC is what it has come to mean. Only IBM can say it made the original IBM-PC, but it's not even in the biz any more.

But from the day Macintosh was launched, its identity was tied to the notion that it was different, cool. And that message plays as strongly today as when Mac was new. Driving up market share by loosing the clones would only undermine that message.

Until next time,
David Tanaka



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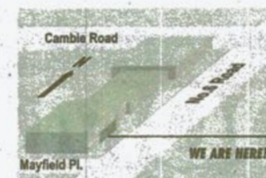
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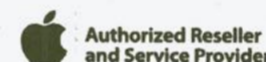


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